NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

IMPROVING LEADERSHIP TRAINING AT THE UNITED STATES NAVAL ACADEMY BY UTILIZING INTERACTIVE MULTIMEDIA INSTRUCTION (IMI)

by

Shannon E. Kawane

June 1999

Thesis Co-Advisors:
Alice Crawford
Bernard Ulozas

Approved for public release; distribution is unlimited.

19991027 131

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE June 1999	3. REPORT TYPE AND DATES COVERED Master's Thesis

4. TITLE AND SUBTITLE: IMPROVING LEADERSHIP TRAINING AT THE UNITED STATES NAVAL ACADEMY BY UTILIZING INTERACTIVE MULTIMEDIA INSTRUCTION (IMI)	5. FUNDING NUMBERS
6. AUTHOR(S) Kawane, Shannon E.	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey CA 93943-5000	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.	12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words)*

This thesis addresses several issues identified in the analysis and design phases of the Instructional Systems Development process to develop an IMI leadership program for the Naval Academy. The overarching goal is to provide the Naval Academy with a study that uses current research and existing innovative leadership programs to answer questions that need to be resolved in developing a program consistent with the Naval Academy's leadership training philosophy. The results suggest that an IMI program can be developed that is consistent with the Naval Academy's leadership development program. The IMI leadership program must incorporate learning theories utilized by midshipmen including observational learning and the Experiential Learning Model. Of the leadership training methods reviewed, the most promising include role playing, simulation, and behavior modeling implemented through interactive multimedia instruction. It was concluded that an IMI leadership program must include learning objectives that take into account not only the theories of leadership taught at the Naval Academy, but also the situational components of leadership. Methods for developing scenarios consistent with the many leadership and counseling theories taught at the Naval Academy, linking past decisions to selection of future scenarios, modeling personality, and providing effective feedback to the midshipmen and the Naval Academy for performance measurement are discussed.

14. SUBJECT TERMS Interactive Courseware (ICW), Interactive Videodisc (IVD), Interactive Multimedia Instruction (IMI), leadership training, United States Naval Academy	15. NUMBER OF PAGES 179
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

This page intentionally left blank

IMPROVING LEADERSHIP TRAINING AT THE UNITED STATES NAVAL ACADEMY BY UTILIZING INTERACTIVE MULTIMEDIA INSTRUCTION (IMI)

Shannon E. Kawane

Lieutenant Commander, United States Navy

B.S., United States Naval Academy, 1988

Submitted in partial fulfillment

of the requirements for the degree of

MASTER OF SCIENCE IN LEADERSHIP AND HUMAN RESOURCES DEVELOPMENT

from the

NAVAL POSTGRADUATE SCHOOL

## June 1999

Author: _____
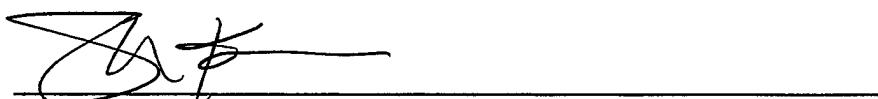
Shannon E. Kawane

Approved by: _____

Alice Crawford, Thesis Co-Advisor

_____
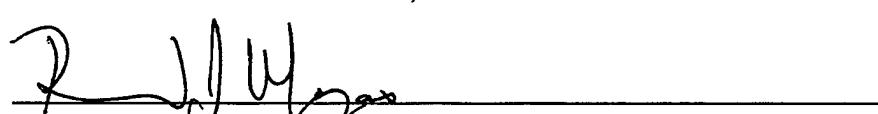
Bernard J. Ulozas, Thesis Co-Advisor

_____
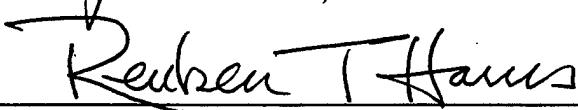
Ruben Harris, Chairman

Department of Systems Management

iii

This page intentionally left blank

ABSTRACT

This thesis addresses several issues identified in the analysis and design phases of the Instructional Systems Development process to develop an IMI leadership program for the Naval Academy. The overarching goal is to provide the Naval Academy with a study that uses current research and existing innovative leadership programs to answer questions that need to be resolved in developing a program consistent with the Naval Academy's leadership training philosophy. The results suggest that an IMI program can be developed that is consistent with the Naval Academy's leadership development program. The IMI leadership program must incorporate learning theories utilized by midshipmen including observational learning and the Experiential Learning Model. Of the leadership training methods reviewed, the most promising include role playing, simulation, and behavior modeling implemented through interactive multimedia instruction. It was concluded that an IMI leadership program must include learning objectives that take into account not only the theories of leadership taught at the Naval Academy, but also the situational components of leadership. Methods for developing scenarios consistent with the many leadership and counseling theories taught at the Naval Academy, linking past decisions to selection of future scenarios, modeling personality, and providing effective feedback to the midshipmen and the Naval Academy for performance measurement are discussed.

This page intentionally left blank

TABLE OF CONTENTS

I. INTRODUCTION

Our leadership and character courses must be based on the challenges that midshipmen will face in the Fleet and the Fleet Marine Force . . . Midshipmen must be able to make the 'hard calls' when they are commissioned, and the only way we will ensure they can is through a consistently positive example and with repeated exposure to actual case studies in naval leadership. (Gen. Charles C. Krulak, Commandant of the Marine Corps, 1999)

The number and range of new technologies are increasing at a dizzying pace. It is apparent that these advances can help us work more quickly and more efficiently than ever before. However, the potential in these new forms of media lies not just in their speed, but in their ability to completely alter the way we think, learn, remember, and communicate information (Halpern, 1994, p. 189).

A. OVERVIEW

In his letter to prospective Naval Academy candidates, former Naval Academy Superintendent, Admiral Charles Larson, described the Naval Academy as a leadership laboratory (Naval Academy Catalog, 1998). The Naval Academy has served as a primary source of training naval officers for more than 150 years. Many factors account for the Naval Academy's success in producing officers for the Navy and Marine Corps. But one significant factor includes its focus on its mission and ability to meet the needs of the Navy and Marine Corps by utilizing state-of-the art concepts in training and education.

The Naval Academy's current methodology, which will be discussed in more detail later, includes a process that provides midshipmen with opportunities to observe and experience leadership in their daily routine, and while participating in summer professional training programs (Katz, 1987; Naval Academy Catalog, 1998). The experiential portion of

the leadership development program culminates during the midshipmen's First-Class[1] year when they are afforded several opportunities to practice their leadership skills. One opportunity to practice leadership skills is assignment to one of the many positions that constitute the midshipmen chain-of-command.

However, teaching leadership through situational experiences results in inconsistent opportunities to practice leadership. In other words, not all midshipmen are afforded the same quality or quantity of situational experiences to practice their leadership skills. For example, 50 percent of the positions in the Brigade's chain-of-command are staff positions that do not routinely provide opportunities for midshipmen to exercise their authority over subordinates. Furthermore, the argument can be made that midshipmen assigned to higher positions in the chain of command have less opportunities to exercise leadership skills required for junior officers in the fleet, since junior officers exercise leadership at the small unit level.

Midshipmen are selected to serve in one of the many positions in the Brigade chain-of-command hierarchy for one semester at a time. One could make the argument that the midshipmen serving in staff positions can be assigned to operational positions during the next semester. Unfortunately, there is no established procedure for ensuring all midshipmen serve in an operational position, except that the Naval Academy instruction governing the assignment of midshipmen to positions states that assignments should be made to maximize

---

[1] All candidates accepted to the Naval Academy start out as freshmen, or Midshipmen Fourth-Class, regardless of previous experience. Sophomores are given the rank Midshipmen Third-Class, juniors are given the rank Midshipmen Second-Class, and seniors are given the rank Midshipman First-Class.

opportunities for leadership (COMDTMIDNINST 1601.12, 1996). Inconsistent opportunities hinder both the quality of feedback the midshipmen receive on their leadership styles and accurate evaluations of their leadership style effectiveness.

The assignment duration raises another issue. The length of time that the midshipmen serve in their positions may not last long enough for the midshipman to experience the results of his or her leadership style. Finally, the situational leadership experiences encountered at the Naval Academy do not represent the experiences encountered in the fleet.

Fortunately, the computer technology proliferation for instructional purposes, interactive multimedia instruction (IMI) in particular, will enable the Naval Academy to take its leadership development process to a higher level of sophistication and quality by providing a more complete experiential learning process.

This thesis addresses the development of an IMI leadership program for the Naval Academy. It outlines key issues that must be examined to produce a successful tool consistent with the Naval Academy's leadership development program.

This chapter focuses on identifying the need for an IMI leadership program based on recent assessments of the Naval Academy's mission and studies on leadership training effectiveness. Next, computer-based training technology concepts are introduced. The term, IMI, is defined, and the military's methodology for developing training programs is explained. Then, the thesis purpose, research questions and methodology, potential benefits, and thesis organization are discussed. Finally, the Naval Academy's leadership development program history is provided, along with a description of the current leadership development

program.

B. BACKGROUND

1. Assessments of Naval Academy Mission Accomplishment

The United States Naval Academy's mission is to:

> Develop midshipmen morally, mentally, and physically and to imbue them with the highest ideals of duty, honor, and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship, and government (Naval Academy Catalog, 1998).

This mission is supplemented by the Naval Academy's purpose, which is "To provide the Navy and Marine Corps with leaders of character who will serve the nation in peace and war" (Special Committee To the Board of Visitors, 1997, p. 17).

With the Naval Academy's mission statement and purpose as a foundation, a logical area of inquiry concerns the Naval Academy's ability to perform its mission. An assessment of the Naval Academy's effectiveness in fulfilling its mission was initiated by the Special Committee to the Board of Visitors in 1996 (Special Committee To the Board of Visitors, 1997). The assessment followed a series of highly publicized incidents at the Naval Academy that included a major cheating scandal, a sexual harassment incident, and a drug and theft ring. The Special Committee also identified Naval Academy strengths and weaknesses, looked for areas for improvement, and made recommendations to improve the Naval Academy. The Special Committee's final report concluded that the Naval Academy was fulfilling its mission, but areas were noted for improvement to achieve the high of

standards the Naval Academy has come to represent.

The Special Committee (1997) recommended that the Naval Academy enhance the midshipmen's education and professional development by integrating, coordinating, and monitoring the various components of leadership and professional development as a single system. The Special Committee (1997) proposed establishing a more rigorous individual leadership development process, and also suggested that the Naval Academy place a greater emphasis on social and behavioral sciences in its curriculum. This suggestion regarding a greater emphasis on social and behavioral sciences resulted in the establishment of the Curriculum-21 Committee by the Superintendent. The Curriculum-21 Committee report (1998) recommended, among other things, (1) optimizing the training sequence opportunities and practical leadership experiences, and (2) integrating major academic and practical (i.e., experiential) leadership training components to maximize leadership development. Finally, Kennedy (1998) used the Special Commission study as an opportunity to determine the methodologies midshipmen use to learn leadership.

2. Interactive Multimedia Instruction: Definitions and Benefits

The improvements in computer technology for instructional purposes have resulted in an opportunity for training organizations to improve greatly the effectiveness and efficiency of their training product. Fletcher (1995) stated that the increased sophistication of advanced naval systems combined with increasing pressures on time, funding, and other resources have made quality training a serious challenge to military personnel. For this reason, military training organizations are increasingly turning to computer-based training technology to facilitate all dimensions of training (Fletcher, 1995).

Interactive multimedia instruction (IMI) is defined in Military Handbook (MIL-HDBK) 1379-3 as "A group of predominantly interactive, electronically-delivered training and training support products" (p. 2). IMI products include interactive courseware (ICW), electronic publications, electronic testing, simulation, and electronic management tools (MID-HDBK 1379-3, 1997). IMI is a relatively new term. Most computer-based training technologies and research focus on IMI components rather than IMI as a collective tool. Therefore, this thesis focuses predominantly on training products classified as ICW.

Interactive Courseware (ICW) is defined by MIL-HDBK 1379-3 in the following ways:

> ICW is computer controlled courseware that relies on trainee input to determine the pace, sequence, and content of training delivery using more than one type of medium to convey the content of instruction. ICW can link a combination of media, to include but not limited to; programmed instruction, video tapes, slides, film, television, text, graphics, digital audio, animation, and up to full motion video to enhance the learning process.

> ICW is a term referring to any type of computerized instruction characterized by the ability of a trainee to respond through an input device. ICW may be an integral part of a computer-based instruction (CBI) program, a computer-assisted instruction (CAI) program, or a computer-based training (CBT) program. (p. 36)

The benefits of IMI and other types of computer-based training technologies are discussed in detail in Chapter II. However, the IMI benefits that contribute to the Naval Academy's mission will be discussed briefly.

An IMI leadership product could provide a more rigorous individual leadership development process recommended by the Special Commission by producing the following benefits:

- IMI can provide midshipmen and the Naval Academy with benefits like improved training quality, and savings in time and money that are associated with computer-based training. These benefits are discussed in Chapter II.

- IMI can provide midshipmen with realistic fleet experiences before leaving the Naval Academy. An IMI product can provide each midshipmen with leadership situations regardless of midshipmen rank, class standing, or assigned leadership position throughout the year.

- IMI can provide midshipmen with an opportunity to experiment with their leadership style when solving these realistic scenarios without the realistic consequences of failure.

- IMI can provide midshipmen with an opportunity to observe and reflect on the consequences of their leadership styles.

- IMI can provide the Naval Academy with an opportunity to observe each midshipman's leadership in action. This opportunity gives the Naval Academy the ability to identify each midshipman's leadership strengths and weaknesses so that they can be rewarded or improved, as necessary. Since each midshipman participates in the training process and is afforded the same chance to lead, the Naval Academy will have a baseline, or common standard, from which to evaluate its midshipmen.

3.   Instructional System Development

The military uses a standardized training development process called the Instructional Systems Development (ISD)/Systems Approach to Training (SAT). This process ensures training objectives are achieved in the most cost effective manner. MIL-HDBK 1379-2 (1997) describes the ISD/SAT process as an adaptation of the systems engineering process. The handbook states that "The ISD/SAT is a systematic approach to developing instructional materials by integrating the processes of analysis, design, development, implementation, and evaluation" (p. 4).

According to MIL-HDBK 1379-2 (1997), the ISD/SAT process seeks to consider

alternative solutions to instructional problems caused by a lack of knowledge and skills on the part of the job performer. The ISD/SAT process is considered to be a flexible process for determining whether instruction is necessary in a given situation. The process is also helpful for determining what instruction is needed and for developing the materials required (MIL-HDBK 1379-2, 1997). The reference identifies four benefits of using the ISD/SAT approach that include enabling leaders to prepare forces for combat, ensuring training is as realistic as possible, conducting training for all types and levels of war, and providing special attention to training for joint and combined operations.

The five phases of ISD/SAT process include analyzing training requirements, designing training programs, developing the training products and materials, implementing training, and evaluating the training program (MIL-HDBK 1379-2, 1997). The process can be viewed as an iterative process because the evaluation phase leads back to the analysis, design, development, and implementation phases.

MIL-HDBK 1379-2 (1997) describes each of the ISD/SAT phases. The analysis phase is considered to be the most critical ISD/SAT phase. The analysis involves identifying critical tasks, standards, conditions, performance measures and other criteria needed to perform each task.

The design phase is based on the results of the analysis. In the design phase, the instructional methods and media are selected, and instructional strategies are defined. Existing instructional materials are reviewed to determine their applicability to the specific instruction under development. In this phase, learning objectives and test items are developed. (MIL-HDBK 1379-2, 1997)

The development phase is based on the design phase results. During development, lesson materials, unit exercises, drills, and other instructional materials for both the student and the instructor are created (MIL-HDBK 1379-2, 1997).

The implementation phase involves fielding the training system with the intended users (MIL-HDBK 1379-2, 1997).

The evaluation phase is the remaining phase in the ISD/SAT process, but it does not end the development process. The evaluation phase is actually a continuous process that starts during the analysis phase and continues throughout life cycle of the instructional system. The evaluation process includes information that is fed back into each phase of the process to improve the training program (MIL-HDBK 1379-2, 1997).

C.   THE PURPOSE OF THIS STUDY

This thesis addresses issues identified in the analysis and design phases of the ISD/SAT process in order to develop an IMI leadership program for the Naval Academy. The overarching goal is to provide the Naval Academy with a study that uses current research and existing innovative leadership programs to answer questions that need to be resolved to develop a program consistent with the Naval Academy's leadership training philosophy. This thesis will build upon the Special Committee and Curriculum-21 Committee recommendation to enhance the midshipmen's leadership education by developing a more rigorous individual leadership development process while incorporating the results of Kennedy's (1998) thesis.

D. RESEARCH QUESTIONS AND METHODOLOGY

This study focuses on two primary questions. The first primary question is: Can an IMI program be developed to teach leadership at the Naval Academy? The second primary question is: How do we develop an IMI product that is consistent with the Naval Academy's leadership philosophy and beneficial to the midshipmen? In answering these questions several secondary questions are addressed:

1. Scenario Development

What types of scenarios, or cases, are needed to provide midshipmen with an adequate learning experience? Many scenarios can be developed by interviewing experienced officers and enlisted personnel, or from utilizing previous research. However, some scenarios and cases are more appropriate than others in supporting the leadership theories taught at the Naval Academy. Therefore, selecting appropriate scenarios is a non-trivial matter. A methodology is needed to ensure the desired scenarios are developed. The methodology must consider the following issues:

a. Leadership Theories

In order to determine the types of scenarios to develop, the current theories of leadership being taught at the Naval Academy must be identified. The program developer must then determine how to model the theories in the IMI product. Identifying current leadership theories is important for two reasons. First, it is important that any IMI product used to supplement the existing leadership training process at the Naval Academy be consistent with the existing program. Second, it is important to define the leadership theories in order to design an accurate and realistic system around an often "fuzzy" topic.

b. *Identifying Learning Objectives*

The second issue that must be addressed when determining the scenario types to develop is to identify the learning objectives for teaching leadership at the Naval Academy. Properly identifying learning objectives is important because they are the foundation upon which an IMI product is designed.

c. *Developing Options*

Developing options for each scenario's resolution is the third issue that must be resolved when determining the scenario types to create. Developing appropriate options is important for several reasons. First, the options must cover an appropriate range of leadership styles. Secondly, the options must lead to outcomes that are consistent with current leadership theories. For example, certain options will result in desirable consequences while other options will result in undesirable consequences. Additionally, some options will include elements of both desirable and undesirable consequences. Finally, options must have realistic consequences.

2. Modeling Personality

How does an IMI product take into account and model the "personal interaction factors (i.e., body language, facial expressions, voice inflections, moods, tempers, choice of words)?" This question is important for interpersonal skills training because a person communicating information can convey different meanings of intent by using different personal interaction factors. The recipients of verbal communication use these verbal and non-verbal cues to interpret the message that can ultimately result in different consequences.

11

3. Measuring Success

How is success measured? To answer this question, the measures of effectiveness used at the Naval Academy to evaluate a midshipman's ability to lead must be identified. These measures of effectiveness can then be used to determine the appropriate type of feedback to provide midshipmen and the Naval Academy staff.

A literature review and personal interviews with Naval Academy staff and faculty are conducted to define the Naval Academy leadership development process, identify current leadership theories, identify leadership training objectives, and identify measures of effectiveness. A literature review, personal interviews with industry experts, and observation of existing IMI products are conducted to identify and evaluate scenario development methodologies, personality modeling, and modeling student feedback. Finally, the information is synthesized to offer recommendations that answer the stated questions. A sample scenario is created to illustrate the envisioned product.

E. POTENTIAL BENEFITS

The Special Committee (1997) recommended that the Naval Academy develop a more rigorous individual leadership development process. Kennedy's (1998) thesis suggests that midshipmen learn leadership by methodologies characterized by experience, observation, reflection, and active experimentation rather than from the formal academic curriculum. This thesis initiates the development process for a training product that will assist the Naval Academy in fulfilling the Special Committee to the Board of Visitors' recommendation by using the learning methodologies suggested to be the most effective in teaching leadership

at the Naval Academy. This thesis offers benefits to the Naval Academy by providing suggestions in the analysis and development phases of the ISD/SAT process used to develop an IMI leadership program. The resulting IMI leadership program will provide midshipmen with an opportunity to experience leadership and provide the Naval Academy with a tool to evaluate their leadership effectiveness, as was discussed earlier.

F.   THESIS ORGANIZATION

Chapter I frames the need for an IMI program around the Naval Academy's mission. Chapter I also presents the Naval Academy's history to provide the reader with a perspective on the evolution of leadership development. Finally, Chapter I furnishes the reader with the Naval Academy's current leadership development methodology. Chapter II is designed to answer the first primary question "Can an IMI program be developed to teach leadership at the Naval Academy?" The question is answered with a review of relevant literature on learning theory, leadership development methodologies, and research on the Naval Academy leadership development process. Examples of existing IMI products and leadership development training systems are provided. Chapter III answers the second primary question "How do we develop an IMI product that is consistent with the Naval Academy's leadership philosophy and beneficial to the midshipmen?" by analyzing the secondary questions stated previously. Chapter IV presents a sample scenario for a Naval Academy IMI leadership product. Chapter V includes conclusions, recommendations and questions for further research.

G.   NAVAL ACADEMY LEADERSHIP DEVELOPMENT PROGRAM

This section discusses the Naval Academy's history and its current leadership development program. The Naval Academy's history is presented to familiarize the reader with the evolution in leadership development at the Naval Academy. The history provides a foundation for understanding the current leadership development program.

1.   United States Naval Academy History in Leadership Development

The United States has always been a seagoing nation and has invariably needed qualified naval officers. However, the Navy did not always maintain an officer training program. The Navy turned to two great sea-powers of the 17th and 18th century, France and Britain, to develop an officer training program (Sweetman, 1979). The French method of training officers was to establish schools on shore that produced officers who understood the theoretical aspects of the naval profession (Sweetman, 1979). The British, on the other hand, took a more practical approach and prepared naval officer trainees in "The school of experience" (p. 10) by sending midshipmen[2] to sea immediately in an apprenticeship program (Sweetman, 1979). A series of Anglo-French naval wars in the 17th and 18th century implied the British training model produced naval officers who were more successful in the art of war, which convinced the United States to adopted their system as its own (Sweetman, 1979). In doing so, the United States established a method whereby a midshipman was appointed by the president or Secretary of the Navy upon Congress' recommendation and

---

[2] The term 'midshipman' was originally the Royal Navy's title for an experienced seaman stationed amidships whose duty it was to relay orders fore and aft. The term eventually emerged in the late 17th century as a rank for youths being trained to become officers in the Royal Navy and was adopted by the United States (Sweetman, 1979).

sent directly to a ship to learn by experience (Sweetman, 1979).

The United States Navy eventually realized that midshipmen needed a more formal basis of education, so a formal shipboard education program was developed for midshipmen in 1802 (Sweetman, 1979). The responsibility for teaching midshipmen subject matter that included mathematics, English, and philosophy fell to the ship's chaplain (Sweetman, 1979). The Navy added school masters to the ship's crew by 1819 in order to improve the quality of education and instituted a policy that required midshipmen to compete by examination for promotions to the officers' corps (Sweetman, 1979).

William Chauvenet, a Yale graduate and noted mathematician, viewed this method of training midshipmen at sea as inadequate (Sweetman, 1979). Chauvenet, who worked as a professor of naval sciences at the Naval Asylum in Philadelphia, took on the task of reforming the midshipman training process (Sweetman, 1979). He instituted a one-year classroom program in the basement of the Asylum to teach the midshipmen naval sciences (Sweetman, 1979). However, he continued to be disappointed with the amount of training midshipmen received, so he eventually presented the idea of a naval school to the Secretary of the Navy, George Bancroft (Sweetman, 1979). Bancroft developed a plan resulting in the founding of the Naval School in 1845 (Sweetman, 1979). He outlined his vision to Congress in a letter that read:

> It is proposed to collect the midshipmen who from time to time are on shore, and give them occupation . . . in the study of mathematics, nautical astronomy, theory of morals, international law, gunnery, use of steam, the Spanish and French languages, and other branches essential . . . to the accomplishment of a naval leader. (Sweetman, 1979, p. 17)

The original Naval School program started with one year at the Naval School. The

midshipmen spent two- to two-and-a-half years at sea to gain practical experience in seamanship (Sweetman, 1979). The midshipmen then returned to the Naval School for a final year of formal education (Sweetman, 1979).

Congress chartered the Naval School as an institution that lacked a military structure and did not impose military discipline on the midshipmen (Sweetman, 1979). The midshipmen were notoriously unruly and undisciplined (Sweetman, 1979). Therefore, several changes were made to the curriculum at the Naval School in 1850 to raise the midshipmen discipline level and professionalism (Sweetman, 1979). The revised program resulted in a four-year academic curriculum in which midshipmen spent their first two years at the Naval School, followed by three years at sea, and culminating with their final two years of formal education at the Naval School (Sweetman, 1979). The Naval School also instituted a demerit system to punish inappropriate behavior, which has evolved into the existing conduct system (Sweetman, 1979). The Naval School increased its emphasis on military discipline by instituting military formations, developing a military organization and midshipmen hierarchy, and making the midshipmen wear uniforms (Sweetman, 1979). Midshipmen were also made responsible for maintaining good order in the dormitory (Sweetman, 1979). Finally, the Naval School was renamed the United States Naval Academy (USNA) (Sweetman, 1979).

The Naval Academy obtained the steamer, the *John Hancock*, and the sailing sloop-of-war, the *Preble,* in 1851 as training vessels (Sweetman, 1979). These ships marked the departure from the extended apprenticeship program in the fleet. The result was the development of a continuous four-year academic program, uninterrupted by service at sea,

that included a midshipman summer cruise program, using the two ships, that still allowed midshipmen to gain practical sea-going experience (Sweetman, 1979).

The Naval Academy began to recognize the importance of self-governance as a mechanism of experiential learning that contributed to leadership development. Therefore, the Naval Academy expanded the experiential learning process by instituting a system that held the First-Class midshipmen squad leaders responsible for indoctrinating and training Fourth-Class midshipmen (Sweetman, 1979). Furthermore, the Naval Academy reorganized the midshipmen chain-of-command several times after 1850 as the size of the midshipmen population grew, and to give midshipmen more opportunities for leadership (Sweetman, 1979). By 1964, the Brigade of Midshipmen chain-of-command consisted of two Regiments, six Battalions, and thirty-six companies (Sweetman, 1979). That organization was maintained until the 1990s when the number of companies was reduced to 30 to reflect the Navy's personnel draw-down. The current Brigade of Midshipmen hierarchy is illustrated in Figure 1 and Figure 2. Detailed illustrations of organizational charts for the Brigade, Regimental, Battalion and Company staffs are included in Appendix A. Furthermore, a description of all midshipmen positions is also included in Appendix A.
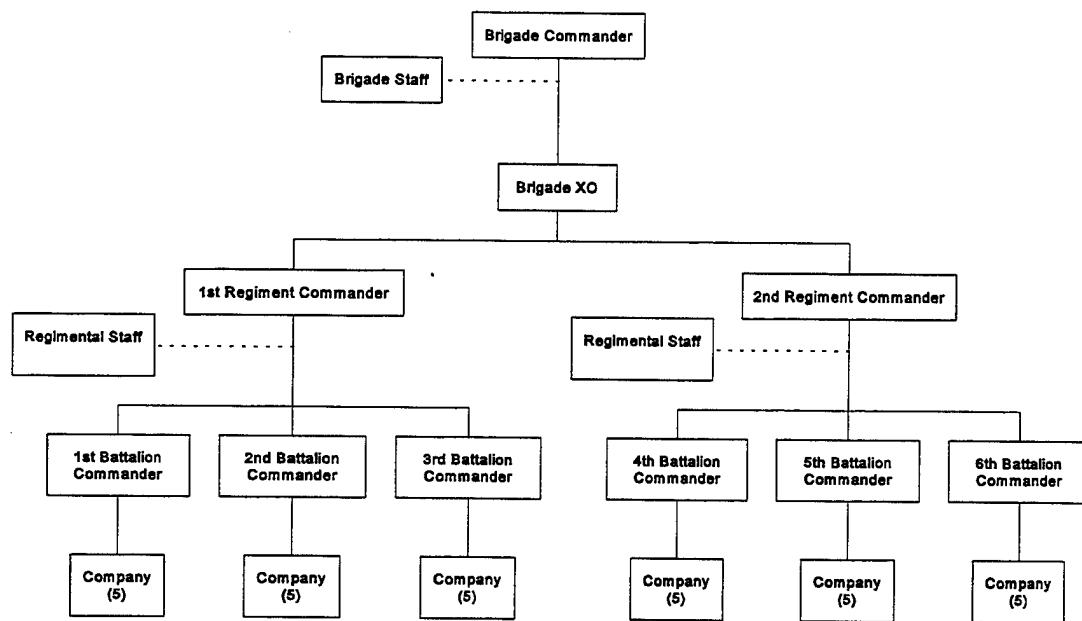
Figure 1: Brigade of Midshipmen Organization (To the Battalion level)
Source: COMDTMIDNINST 1601.12, Brigade Striper Organization and Selection
Procedures, 4 Oct 96

```
                    ┌─────────────────────┐
                    │ Battalion Commander │
                    └──────────┬──────────┘
        ┌──────────────┐       │
        │ Battalion Staff ├ - - ┤
        └──────────────┘       │
                    ┌──────────┴──────────┐
                    │  Company Commander  │
                    └──────────┬──────────┘
        ┌──────────────┐       │
        │ Company Staff ├ - - ┤
        └──────────────┘       │
   ┌───────────┬───────────────┼───────────────┬───────────┐
┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│1st Platoon│ │2nd Platoon│ │3rd Platoon│ │4th Platoon│
└──────────┘ └────┬─────┘ └──────────┘ └──────────┘
          ┌────────┼────────┐
      ┌─────────┐┌─────────┐┌─────────┐
      │1st Squad││2nd Squad││3rd Squad│
      └─────────┘└────┬────┘└─────────┘
                 ┌────────────┐
                 │ Team Leader │
                 └──────┬──────┘
                 ┌──────────────┐
                 │ Element Leader │
                 └──────┬───────┘
                 ┌──────────────┐
                 │ Element Member │
                 └──────────────┘
```
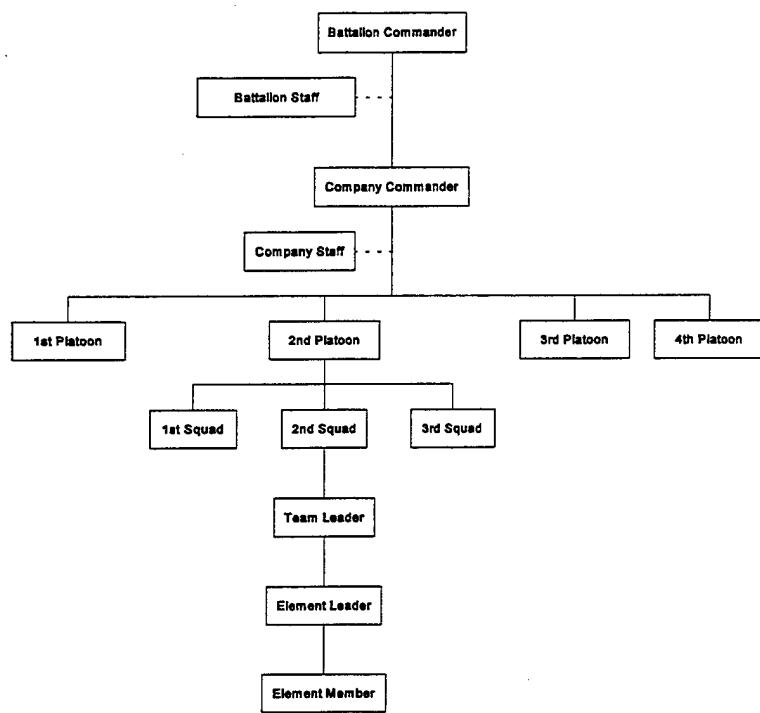
Figure 2: Brigade of Midshipmen Organization (Below Battalion Level)
Source: COMDTMIDNINST 1601.12, Brigade Striper Organization and Selection Procedures, 4 Oct 96

19

2. Naval Academy Leadership Development Today

These evolutionary developments in leadership training at the Naval Academy resulted in a sophisticated leadership training process. Today, the Naval Academy uses a two-pronged strategy to develop leadership (Katz, 1987). The first strategy teaches leadership through formal classroom instruction in leadership, ethics, law, and naval sciences. The approach uses the classroom environment to provide midshipmen with the theoretical understanding of leadership principles, ethics, law, and naval sciences (Naval Academy Catalog, 1998). The second strategy is to provide the midshipmen with opportunities to observe and experience leadership in their daily routine and while participating in summer professional training programs (Katz, 1987; Naval Academy Catalog, 1998).

a. *Academic Curriculum in Leadership*

The Naval Academy's curriculum has always focused on two areas, professional training and academic courses. The first academic courses included theory of morals, mathematics, the Spanish and French languages, and English. Today, the academic curriculum includes courses that support 19 majors programs (Naval Academy Catalog, 1998).

The first professional training program included those topics related directly to the naval sciences like nautical astronomy, international law, gunnery, and use of steam. However, no leadership courses existed. Not until 1921 did the Naval Academy Superintendent, Admiral Wilson, introduce the first leadership course (Sweetman, 1979). The Naval Academy then published its first leadership text in 1924 entitled <u>Naval Leadership</u>

With Some Hints to Junior Officers and Others (Thebaud, 1924). The textbook was replaced

by Naval Leadership, 1ˢᵗ ed, (Department of Leadership and Law [Lead/Law], 1949), Naval

Leadership, 2ⁿᵈ ed., (Lead/Law, 1959), and Fundamentals in Naval Leadership (Lead/Law,

1984). Fundamentals in Naval Leadership was used until 1991 (Andersen, 1999; Naval

Academy Yearbook, 1995). These textbooks covered a wide array of leadership topics,

examples of which are illustrated in Figure 3.

Fundamentals of Naval Leadership Topics	
Leadership defined	Dynamic qualities of leadership
Leadership factors and traits	Success factors of leadership
Leadership styles	Personal relationships
The study of human behavior	Counseling and interviewing
Motivation and learning	Discipline, morale, and esprit de corps
Handling conflict and frustration	Training
Selection and performance evaluations	Organization and administration
The structure and functioning of groups	Leadership and the code of the U.S.
Moral leadership	fighting force
Role of the naval officer	Positive leadership techniques
Personal qualities for effective leadership	Case studies

Figure 3. Fundamentals of Naval Leadership Topics
Source: Lead/Law, 1984

The Naval Academy has always recognized the value of psychology and

ethics in leadership training. For example, psychology and ethics (called "morals" in the

1949 textbook) constituted over half of the 1949 leadership textbook (Andersen, 1999). The

Naval Academy added Psychology to the leadership curriculum as a separate course in 1979

(Naval Academy Yearbook, 1995; Andersen, 1999). They strengthened the ethics

development program in 1995, following a series of highly publicized cheating, sexual

harassment, drug, and theft incidents, with the publication of an ethics textbook and the addition of several courses in ethics and philosophy (Naval Academy Yearbook, 1995; Andersen, 1999).

The leadership curriculum has remained dynamic. In 1991, the Naval Academy changed its approach to teaching leadership in the classroom by publishing the textbook, Naval Leadership: Voices of Experience. This textbook incorporated the leadership experiences, as told through interviews, of successful naval leaders from the United States and several foreign countries (Katz, 1987). The Naval Academy sought to preserve what it described as enduring leadership principles (Naval Academy Yearbook, 1987). Other texts, which changed periodically, were sometimes used to address contemporary issues relating to military leadership development (Naval Academy Yearbook, 1995; Andersen, 1999). In this way, the Naval Academy faculty felt they could transmit the combined wisdom of experience and, simultaneously, deal with the dynamic nature of contemporary naval leadership issues (Naval Academy Yearbook, 1995).

The academic curriculum on leadership has been revised several times since then. The leadership curriculum in the 1990s incorporated such contemporary leadership theories as Covey's Seven Habits of Highly Effective People and the Navy's Total Quality Leadership program (Andersen, 1998).

The current leadership curriculum provides the midshipmen with a fundamental understanding of many leadership theories and principles so as to supply them with a "toolbox" of leadership skills (Andersen, 1998). They can then draw upon the appropriate leadership tool, depending on their evaluation of the situation (Andersen, 1998).

22

According to the Curriculum-21 Committee (1998) report, the current leadership curriculum includes the study of core values, citizenship, the study of the professional military officer, the conceptual study of individual human behavior as it relates to the naval service, and the study of ethical and moral dilemmas with applications for the naval service. The curriculum develops advanced leadership skills with an emphasis on understanding the dynamics of group settings (Curriculum-21 Committee, 1998).

The curriculum is designed to expose midshipmen to formal leadership instruction at least one semester per academic year to keep the subject fresh in their minds and allow them to build on the skills learned the previous year (Naval Academy Yearbook, 1995). The leadership curriculum includes a set of core leadership courses that are required for each midshipman. The midshipmen are required to supplement this core curriculum with at least two additional courses of their choosing. The mandatory leadership curriculum is discussed here.

(1) Leadership and Human Behavior (NL 112).

Leadership and Human Behavior (NL 112) is a course designed for Fourth-Class midshipmen. The course superceded Fundamentals of Naval Leadership (NL 102) in the 1999 Fall semester, however, a review of NL 102 course objectives is important because they are still taught in NL 112 and in other places (Andersen, 1999). The NL 102 course utilized a seminar format and was designed to introduce midshipmen to fundamental leadership concepts that would be built upon later in the leadership curriculum (Naval Academy Catalog, 1998). The NL 102 course was designed to develop the foundation for the Navy's Core Values and establish the fundamentals of naval leadership using the

23

philosophy of "Know yourself, know your troops, and know your job" (Naval Academy Catalog, 1998).

The Naval Academy replaced the NL 102 course with NL 112 to implement the Special Commission (1997) and Curriculum-21 Committee (1998) recommendation to place a greater emphasis on social and behavioral sciences, and human behavior, in the academic curriculum. Some of the leadership concepts from NL 102 are still taught in NL 112, but other portions of NL 102 are now taught during Plebe[3] indoctrination training (Andersen, 1999). A brief synopsis of lesson Topics are included in Figure 4.

NL 112 Topics
The study of the Naval Professional; characteristics and standards
The study of human behavior, including cognitive development and moral development
Defining and understanding personality types
Followership as a first step in leadership development
Effective performance in high stress environments
Managing behavior
Theories and styles of leadership

Figure 4. Topics covered by Leadership and Human Behavior (NL 112).
Source: Andersen, 1999

(2) Ethics and Moral Reasoning for the Naval Leader (NE 203).

This course is required for Third-Class midshipmen. It is structured around classical and contemporary writings in moral philosophy (Naval Academy Catalog, 1998). The course utilizes a case study approach and includes current as well as historical

---

[3] The term, Plebe, is a colloquial term for a Fourth-Class Midshipman. This term was borrowed from the U.S. Military Academy at West Point. The term, Plebe, is derived from a Roman term, Plebian, which denoted the lowest class of society.

case studies to show how these fundamental ideas can be applied to the service of a professional military leader.

(3) Applications and Visions for Naval Leadership (NL 302).

The NL 302 course is a required leadership course for Second-Class midshipmen that focuses on further developing the fundamental concepts presented in previous courses. However, NL 302 concentrates on the process approach to leadership. The Naval Academy Catalog (1998) states that the course is designed to "Explore the dynamic interaction between 'the Leader, Followers, and the Situation' . . . in order to reinforce the concept that leadership is 'the process of influencing an organized group toward accomplishing its goals'" (p. 126). One NL 302 objective is to help the midshipmen bridge the gap between their role as midshipman at the Naval Academy and their role as first tour naval leaders upon their graduation (Naval Academy Catalog, 1998). The course helps midshipmen develop the skills needed as first tour naval leaders by utilizing student-led seminars and in-class exercises designed to promote active discussions of current academic theory applied in a way that is practical and consistent with the Navy's culture by using specific Naval leadership case study problems. The course also includes involvement by senior enlisted personnel assigned to the Naval Academy whose objective is to employ lectures and role-playing to focus on the relationship between junior officers and senior enlisted personnel. The senior enlisted lecture series also provides midshipmen with key skills to promote effective subordinate counseling in the fleet (Andersen, 1999).

(4) Law for the Junior Officer (NL 400).

NL 400 is a required course for First-Class midshipmen. It is designed

to be a compilation of major aspects of military justice, administrative law, law of armed conflict, and law of the sea relevant to the junior officer (Naval Academy Catalog, 1998). The course uses several methods of teaching including lectures, videos, and practical exercises to provide the midshipmen a familiarity with legal issues as they apply to the Naval service and junior officer.

(5) Junior Officer Seminar for Surface Warfare Officers (NS 401), Submarine Warfare (NS 402), Aviation (NS 403), or Marine Corps (NS 404).

These courses are designed to be capstone courses for First-Class midshipmen. Midshipmen who volunteer, or are selected, for duty as either surface warfare, submarine warfare, aviation, or Marine Corps officers attend the capstone course associated with their warfare specialty. The course is designed to provide midshipmen with information on the duties and responsibilities required of the junior officer in the warfare community in which the midshipmen have volunteered to serve (Naval Academy Catalog, 1998). The course includes topics in advanced navigation, operational procedures, and practical applications of leadership and management principles tailored to the specific warfare community. The course utilizes case studies, oral presentations, lectures, seminars, and experiential laboratories, for surface warfare candidates, to facilitate learning.

b.   *Observational and Experiential Learning*

The second strategy for teaching leadership at the Naval Academy is to provide midshipmen the opportunity to observe and experience leadership situations (Katz, 1987). The Naval Academy's methodology for teaching leadership using observational and experiential learning involves a progressive, or building block (Katz, 1987), approach that

prepares midshipmen for their next level of responsibility. This building block method "Begins with learning and experiencing the role of a subordinate and culminates with real-life peer leadership preparation, and practice" (Curriculum 21 Committee, 1998, p. II.D.7-1). This program provides the midshipmen with many opportunities to experience leadership. This method allows midshipmen to start their leadership training process by being indoctrinated into the Navy's culture and learning the foundations of leadership. They learn more leadership skills as they advance through each year of their Naval Academy curriculum. The midshipmen are afforded the opportunity to apply what they learn and build on their learning with experience and observation.

The observational learning occurs throughout the four years at the Naval Academy. Midshipmen observe experienced fleet officers and senior enlisted personnel in day-to-day operations at the Naval Academy. The Naval Academy utilizes officers as leadership instructors, instructors of academic courses, and as staff to reinforce leadership principles in both academic and non-academic environments (Katz, 1987). Since the Naval Academy uses a progressive, or building-block (Katz, 1987), approach to leadership development, junior midshipmen also learn by observing the leadership of senior midshipmen. Finally, midshipmen learn leadership by observing officers and enlisted personnel in leadership positions while participating in professional training programs during the summer.

(1) The Plebe Leadership Experience.

As a Plebe, a midshipman's leadership experience involves learning through exposure to a military culture that focuses on self-discipline, routine, teamwork, and

basic values of the military society (Katz, 1987; Naval Academy Catalog, 1998). Plebes experience leadership by learning to be a "follower" and gaining insight into the effects of various leadership styles.

(2) The Third-Class Leadership Experience.

Third-Class midshipmen start to assume responsibilities in leadership by assignment as "Element Leaders" within their Squads (COMDTMIDNINST 1601.12, 1996). As an Element Leader, Third-Class midshipmen are responsible for the overseeing one Fourth-Class midshipman. The element organization allows Third-Class midshipmen the opportunity to exercise increased leadership responsibility in helping to develop Fourth-Class midshipmen.

Third-Class midshipmen continue to experience and learn leadership as "followers" in summer professional training programs by participating in Yard Patrol (YP) craft or sailing cruises in which they operate the YP or sailboat under the guidance of First-Class midshipmen (COMDTMIDN NOTICE 1530, 1998). These training programs also serve to indoctrinate the Third-Class midshipmen to shipboard life. Third-Class midshipmen further experience leadership through team building exercises and operations in small groups in Naval Tactical Training (NTT).

(3) The Second-Class Leadership Experience.

Second-Class midshipmen gain more responsibilities and are given the opportunity to lead other midshipmen. First, Second-Class midshipmen in each Company are assigned positions mirroring First-Class positions in the chain-of-command. The assignment to these positions are generally made based on performance. Secondly,

28

Second-Class midshipmen serve as Team Leaders within their squads. As Team Leaders, Second-Class midshipmen are responsible to their Squad Leader for ensuring all subordinates within their team conform to command policies. Third, Second-Class midshipmen are assigned to fulfill the Brigade Sergeant Major, Brigade Drill Sergeant, Brigade Parade Sergeant, Battalion Drill Sergeant, Company First Sergeant, Company Drill Sergeant, and Platoon Sergeant positions within the Brigade of Midshipmen hierarchy. (COMDTMIDNINST 1601.12, 1996)

A specially selected group of Second-Class midshipmen are chosen to participate in the Plebe Summer training program (COMDTMIDNINST 1601.12, 1996; Katz, 1987). These Second-Class midshipmen are assigned responsibilities as Squad Leaders. As Squad Leaders they are responsible for leading and training approximately eight Plebes during the eight-week Plebe Summer program. It should be noted, however, that Second-Class midshipmen are selected based on their past performance, and not all Second-Class midshipmen are afforded this opportunity.

Second-Class midshipmen are also given an opportunity to gain further insight into shipboard life by being assigned to a naval ship during the summer (COMDTMIDN NOTICE 1530, 1998). They are assigned to a petty officer running mate who exposes the midshipmen to duties and responsibilities of the junior enlisted person. This shipboard training provides midshipmen with their first opportunity to observe and experience the leadership of naval officers and enlisted personnel in an operational environment.

(4) The First-Class Leadership Experience.

First-Class midshipmen are given the opportunity to experience leadership by being assigned to one of the numerous positions of leadership that constitute the midshipmen hierarchy in the Brigade of Midshipmen (COMDTMIDNINST 1601.12, 1996; Katz, 1987). Recall that a synopsis of the Brigade of Midshipmen hierarchy is included in Figures 1 and 2, and in Appendix A. This responsibility includes making daily decisions affecting morale and performance of other midshipmen (Naval Academy Catalog, 1998). They are urged to lead "Through personal example, communications, rewards and discipline and other techniques learned in the classroom and through three years experience" (Naval Academy Catalog, 1998, p. 41). The method for choosing midshipmen for the chain of command is described in COMDTMINDINST 1601.12 (1996). Midshipmen are selected to these positions based on their performance and leadership potential, so midshipmen are not guaranteed a position allowing them to exercise or demonstrate their leadership skills with subordinates. Furthermore, as was discussed earlier, approximately 50 percent of the positions are staff positions that do not include supervision of subordinates.

The First-Class midshipmen are also given several opportunities to exercise leadership skills during their summer professional training programs (COMDTMIDN NOTICE 1530, 1998). First, they are assigned to a ship, submarine, or an aviation squadron where they are paired with a junior officer running mate who exposes them to the duties and responsibilities of a junior officer. The First-Class midshipmen can also participate in Special Warfare Training or Marine Corps "Leatherneck" Indoctrination Training, in lieu of a ship or aviation squadron, where they are exposed to training unique

to those two warfare specialities. Second, some First-Class midshipmen have an opportunity to exercise their leadership by participating in Plebe Summer. First-Class midshipmen participating in Plebe Summer are selected based on their previous performance, and are assigned positions within the Plebe Regiment leadership hierarchy. They are responsible for training the Fourth-Class midshipmen in the eight-week indoctrination course. First-Class midshipmen can also participate in a YP cruise or sailing cruise in which they are assigned division officer responsibilities and are accountable for the Third-Class midshipmen under their purview.

The Naval Academy has been called an operating laboratory (Katz, 1987), or leadership laboratory (Naval Academy Catalog, 1998), because of the numerous opportunities to learn, observe, and practice leadership principles taught in the classroom. Furthermore, the Naval Academy provides an opportunity to learn from mistakes while benefitting from the guidance of experienced Navy and Marine Corps officers (Naval Academy Catalog, 1998). However, the description of leadership opportunities shows that midshipmen are afforded inconsistent opportunities to practice leadership. Not all midshipmen are afforded the same quality or quantity of situational experiences to practice their leadership skills. The experience level depends upon the Brigade chain of command position or summer training program to which a midshipman is assigned. Furthermore, many of the most intense opportunities, like assignment to the most challenging Brigade chain-of-command positions or Plebe Summer duty, requires a screening process so that only those who have demonstrated the best performance are selected.

31

H.   SUMMARY

The need for IMI has been established. The need is based on recent assessments of the Naval Academy's ability to accomplish its mission, studies on leadership training effectiveness, and the Naval Academy's current leadership development methodology. Inconsistent opportunities to practice leadership are noted to exist in providing midshipmen with useful, realistic situational experiences that are directly applicable to junior officer leadership in the fleet. These inconsistent opportunities hinder both the quality of feedback the midshipmen receive on their leadership style and the accurate evaluations of the effectiveness of their leadership styles, and may not last long enough for the midshipman to experience the results of his or her leadership style.

An IMI leadership product can provide a more rigorous individual leadership development process. A well developed IMI program can supplement the existing experiential learning experience by providing every midshipmen with realistic scenarios that allows them to experiment, observe, and reflect on the consequences of their leadership style. Finally, an IMI program can provide the Naval Academy with an opportunity to observe each midshipman's leadership in action.

Now that the need for an IMI program has been established, this thesis explores the first of two primary questions: Can an IMI program be developed to teach leadership at the Naval Academy?

II. INVESTIGATING THE FEASIBILITY OF AN IMI LEADERSHIP PROGRAM

This chapter is designed to answer the first primary question posed in this thesis: Can an IMI program be developed to teach leadership at the Naval Academy? This question is answered by exploring several areas. First, learning theories and methods used by midshipmen to learn leadership are discussed to determine if the theories and methods are consistent with IMI. Then, existing methodologies in leadership training are reviewed to identify which are conducive to implementation in an IMI program. Existing programs that utilize IMI to teach leadership, as well as other programs that don't utilize IMI but can be adapted to IMI, are examined in detail.

A. THEORIES OF LEARNING

Chapter I introduced IMI and briefly discussed its benefits. It was noted that IMI seems best suited for topics that use experientially based methods. Chapter I also discussed the two-pronged strategy for teaching leadership at the Naval Academy, one of which included observational and experiential learning.

This section discusses the underlying theories for observational and experiential learning to help the reader understand better the learning process and methods used by midshipmen to learn leadership.

First, observational learning is explained. Factors that improve the observational

learning process are presented and will be used in subsequent chapters to provide recommendations for developing an IMI program. Then, the Experiential Learning Model is presented. Finally, the results of Kennedy's (1998) research on methods used by midshipmen to learn leadership are presented.

1. Observational Learning

a. Observational Learning Explained

The Naval Academy uses observational learning as a methodology to teach leadership. Early theorists believed observational learning resulted from a natural human tendency to imitate what they see others do (Hergenhahn & Olson, 1997). At first, observational learning was believed to occur only if the student actually performed the actions being learned (Hergenhahn & Olson, 1997). However, Bandura (as cited in Hergenhahn & Olson, 1997) proved that a person can learn vicariously by observing without actually having to imitate the action, and without reinforcement. Bandura concluded that human learning occurs by observing other people's, or model's, behavioral consequences. He believed this type of vicarious learning is made possible by the human capacity to symbolize and store information and then act on that information at a later time.

b. Factors Affecting Observational Learning Success

Bandura (as cited in Hergenhahn & Olson, 1997) performed studies on several types of observational learning. These types of learning included direct modeling, in which the student observes a live model; symbolic modeling, in which the student observes a model via a communication medium like film; and live modeling with participation, in which the

student was allowed to observe the model, and then participate in the action being observed. He concluded that direct modeling was more effective than symbolic modeling, although the symbolic modeling results could be improved by allowing observers to view a variety of models instead of just one. He also concluded that live modeling with participation by the observer was the most effective observational learning method.

Bandura (as cited in Hergenhahn & Olson, 1997) believed observational learning is influenced by four processes. The attentional process encompasses a person's ability to sense, or observe, activities of interest. The retentional process involves a person's ability to retain the observed information. The behavioral production process determines the extent to which learned skills can be translated into performance. For example, people may not be able to perform the task despite understanding what they observed because they do not possess adequate skills or equipment. Bandura believed that a period of cognitive rehearsal is necessary before an observer's behavior matched the model's behavior. Finally, motivational processes provide the motive for utilizing what was learned. Hergenhahn and Olson (1997) summarize the effects of these four processes by stating "If observational learning fails to occur, it could be that the observer did not observe the relevant activities of the model, did not retain them, was physically incapable of performing them, or did not have the proper incentive to perform them" (p. 334).

Pintrick and Schunk (1996) identified several model characteristics that improve observational learning success. These characteristics, which are described in the following paragraphs, are: competence, perceived similarity, credibility, and enthusiasm.

Competence means the model is an expert in the performing the skills being taught. However, Pintrick and Schunk (1996) noted that the best models may be students who are equal to or slightly more competent than the observers.

The observer's perceived similarity to the model is important in helping the observer gauge whether or not the actions are socially appropriate and will produce similar results. Perceived similarity can also affect the observer's self-efficacy and motivate them to perform the task if they observe others succeeding.

Model credibility can affect the observer's motivation to learn the skills being demonstrated by the model. Models who act consistently with the behaviors they model are more likely to be judged as credible and emulated by observers.

Model enthusiasm is important in improving the observer's motivational processes. The model's enthusiasm grabs the observer's attention, improves retention, and improves the observer's perception of task value, especially if the model is deemed as credible.

In summary, observational learning can be effective in teaching leadership. Observational learning effectiveness can be improved by using live modeling with observer participation, or symbolic modeling using many models. Furthermore, observational learning success improves when the model is perceived as competent, when the observer perceives the model to be similar to the observer, when the model is perceived as credible, and when the model displays enthusiasm in his or her actions.

2. Experiential Learning Model

The Experiential Learning Model (Kolb & Wolf, 1991), illustrated in Figure 5, explains how people generate concepts and principles that determine their behavior in new situations. The Experiential Learning Model is a four-stage continuous cycle: (1) A concrete experience leads to (2) observation and reflection, which leads to the (3) formation of abstract concepts and generalizations, which leads to (4) testing implications of concepts in new situations.
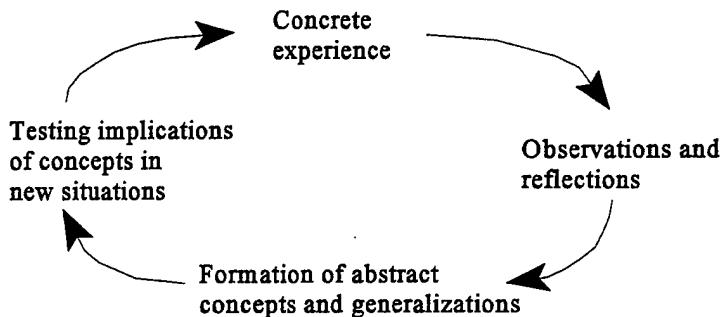
Figure 5: The Experiential Learning Model
Source: Kolb and Wolfe (1991).

According to Kolb and Wolf (1991) the learner is exposed to new experiences. The learner observes and reflects on these experiences from different perspectives. The learner creates concepts that integrates these observations into theories. The learner then uses the new theories to make decisions and solve problems that are applied to new situations.

Kolb and Wolf (1991) theorize that learning occurs using abilities that are most suited

to the type of learning taking place and learner predisposition. They suggest there are two dimensions to the learning process. On one dimension, the continuum of learning processes range from concrete experience at one end to abstract conceptualization at the other end. The second dimension, which is perpendicular to the first dimension, consists of active experimentation at one end and reflective observation at the other end. These two dimensions superimposed on each other form a grid with four quadrants. The learning process, therefore, involves moving along these two dimensions simultaneously depending on the learning situation and the student's learning style preference. In other words, a student follows the process outlined by the Experiential Learning Model, but may prefer to focus on the upper left quadrant of the learning grid, by relying on concrete experiences and active experimentation.

3. Midshipmen Learning Processes

Kennedy's (1998) study concluded that midshipmen at the Naval Academy rely on several types of experiential learning to develop their leadership skills that are consistent with observational learning theory and the Experiential Learning Model (Kolb & Wolf, 1991). The midshipmen learn by experience and observation, as was discussed in Chapter I and in the previous section. The midshipmen learn by reflecting on personal experiences and observations, which are then used to extract lessons. Midshipmen utilize experimentation to test the variety of leadership theories taught at the Naval Academy to determine the style best suited to them. The midshipmen learn leadership through interpersonal interactions with other midshipmen, officers, and coaches assigned to the Naval

Academy. Finally, the midshipmen learn acceptable leadership behaviors through exposure to the organizational culture.

4. Summary

Learning theories and methods used by midshipmen to learn leadership present three implications for developing an IMI product. First, the Experiential Learning Model (Kolb & Wolf, 1991), as it relates to learning leadership skills, must be understood and incorporated into any IMI program being developed. Second, in developing an IMI product one must consider the student's learning style and capitalize on the various learning styles that exist at the Naval Academy. Third, any leadership development program at the Naval Academy will be most effective if it relies heavily on experiential and observational learning. These implications support an IMI leadership program because IMI is experientially based.

B. LEADERSHIP TRAINING METHODS

In attempting to answer the primary question of whether or not an IMI program can be developed to teach leadership at the Naval Academy, current leadership training methods and programs must be evaluated. Existing leadership training methods must be evaluated to determine if any techniques have been shown to be particularly effective or ineffective in leadership development. Leadership training methods must also be evaluated to determine if the methodologies are consistent with midshipmen preferences in leadership development and existing IMI capabilities.

An often asked question in early leadership research was whether a leader is born or

made (Bass, 1990; Chemers, 1995; Cronin, 1995). There are indications that certain innate character and personality traits are conducive to leadership potential (Bass, 1990; Kirkpatrick & Locke, 1991; Stodgill, 1948). Contemporary leadership researchers do not question, however, the belief that leadership skills can be developed (Bass, 1990; Chemers, 1995; Cronin, 1995). The training process must cultivate leadership styles that contribute to an organization's past successes and are congruent with its culture (Schein, 1992).

A literature review suggests there is no methodology for leadership training that is universally accepted or proven to be the right methodology for all student leaders. Fiedler (1996) stated that:

> Although we now see leadership as a complex interaction between leader and the social and organizational environment, this lesson is frequently ignored in . . . leadership training. At this time . . . most . . . leadership training approaches have not been validated (p. 241).

Fiedler (1996) cited Burke and Day's meta-analysis of 70 different management training studies in which they reported that few existing training evaluations were based on credible organizational performance measures that could document the extent to which the training contributed to organizational performance. Fiedler (1996) concluded that we know little about the processes in leadership and managerial training that contribute to organizational performance. He concluded the lack of knowledge is because of a scarcity of meaningful and rigorous research.

Bass (1990) identified eleven methods for leadership development, six of which he considered to be off-the-job type training and five which he considered to be on-the-job training techniques. They include: lectures and discussion, role playing, simulation,

computer-assisted and programmed instruction, behavioral modeling, sensitivity training, learning from experience, coaching, mentoring, job rotation, and survey feedback.

1. Lectures and Discussion

Lecturing is a passive learning process in which a subject expert, the instructor, presents a series of facts, principles, and concepts to trainees (Sgro, Dobbins, & Pence, 1986). Studies show that lectures and discussion can have positive value in teaching leadership (Bass, 1990), especially when used to communicate factual information such as (1) orienting students to course policies, rules, or regulations; (2) presenting basic material that provides a common background for subsequent activities; (3) setting the stage for demonstrations, illustrations, or discussions; and (4) reviewing, clarifying, or summarizing material (Tracy as cited in Sgro, et al., 1986). Furthermore, Knowles and Knowles (1955) suggested that lectures are effective for summarizing a body of facts, describing experiences, presenting a systematic statement of principles, and integrating complicated ideas and concepts into orderly system of thought. Lecturing can also be used to convey information to large groups of students.

Studies on lectures and discussion effectiveness vary depending on training objectives. Bass (1990) found that both lectures and discussions can be useful in management education. However, the general consensus among researchers of leadership training effectiveness is that lecturing is not an effective method for teaching leadership and is also the least popular method for teaching leadership (Bass, 1990). Knowles and Knowles (1955) attribute this perception to the lecture methodology's one-way process that takes into

41

account needs, interests, and feelings of trainees in a general sense without much interaction. Furthermore, Kearsley (1983) concluded that learning based on passive presentation methods results in little transfer of knowledge per unit of time when compared to more interactive leadership teaching methodologies. Sgro et al. (1986) suggested that, used alone, the lecture technique is not an effective leadership training strategy. Olmstead (as cited in Sgro et al., 1986) concluded that there is little evidence to indicate that lectures change attitudes or develop interpersonal skills. Finally, Kennedy's (1998) research suggested that lecturing was the least effective method for leadership training among midshipmen at the United States Naval Academy.

One subset of the lecture and discussion methodology is the case study method (Srgo et al., 1986). This format for teaching leadership involves presenting students with a concrete and realistic problem situation, usually an actual experience. This format for teaching has a higher level of interactivity because the instructor's role is to moderate the discussion as students analyze and discuss the situation dynamics. Maier, Solem, and Maier (as cited in Srgo et al., 1986) identified several advantages to the case study method. It discourages trainees from making snap judgements about people or behavior. Students are discouraged from believing in, or looking for, the "one correct answer." The case study method illustrates how the same set of events can be perceived differently by different people. Students are trained to discuss situations with others and experience the broadening value of interacting with one's equals. Case studies that are discussed in a group format also hold the advantage of keeping the problem solving process in a practical setting rather than

allowing it to take an overly idealistic character. The drawback to the case study method, as with the lecture method, is that it does not provide the student with the opportunity to practice and develop the behavioral skills required for effective leadership.

2. Role Playing

Role playing has theoretical underpinnings within several learning theories including Bandura's observational learning theory (Hergenhahn & Olson, 1997) and the Experiential Learning Model (Kolb & Wolfe, 1991). Bass (1990) described role playing as a teaching methodology requiring participants to act out various leadership problems under various conditions of audience participation. Role playing requires one group member to play the leader role and one or more members to play roles as subordinates, peers, or superiors, depending on the scenario being taught. The role playing objective is to improve learning and retention and to promote transference from the learning situation to the leadership performance on the job. Role playing advantages include: (1) helping to develop insight into other people's feelings, (2) developing an understanding of external forces in a situation that block or facilitate good human relations, (3) developing skills in diagnosing group problems, and (4) developing skills in solving group problems (Knowles and Knowles, 1955).

Role playing appears to add to leaders' skills in dealing with human relations problems (Bass, 1990). Studies show that role playing participants tended to regard it as beneficial in increasing their understanding of human relations problems (Lonergan and Lawshe, Brune, & Bolda as cited in Bass, 1990). Studies suggest that role-playing participants improved more in interpersonal adjustment measures than discussion group

participants who did not utilize role playing (Mann & Mann as cited in Bass, 1990).

An example of an effective leadership training system that utilized role playing was the Army's performance-based leadership training program for Reserve Officer Training Corps (ROTC) students called the "U.S. Army ROTC Leadership Development: A Performance-Based Program" (Sgro et al., 1986). The program focused on the acquisition of "hands-on" experience through the utilization of case studies, role-playing, and simulation. It provided ROTC cadets with the opportunity to develop a frame of reference for effective platoon leadership by first utilizing a combination of lectures and case study techniques to teach leadership dynamics. The program was then followed by a second component that used simulation and role-playing exercises to provide hands-on experiences.

Field evaluations to determine the program acceptability among instructors and students suggested the program was well liked, easy to use, and perceived to be effective (Sgro et al., 1986). Unfortunately, the evaluation did not discuss the program effectiveness over other programs or provide follow up evaluations.

The positive role-playing effects tend to depend on a variety of circumstances (Bass, 1990). Harvey and Beverley (as cited in Bass, 1990) found that role playing exerted significant positive effect on opinion, but authoritarian participants gained more from role playing than those who were not authoritarian. Furthermore, Trittipoe and Hahn (as cited in Bass, 1990) suggested that role playing participants are rated higher by their peers and observers if they are also rated high in problem solving, and those who are rated higher in both problem solving and role playing tend to be rated higher in leadership and class

44

standing. This finding suggests that the role playing effectiveness in teaching leadership may depend on individual personality traits.

There are several draw backs to role playing (Wehrenburg as cited in Sgro et al., 1986). The instructor must be highly skilled because the multitude of paths the student may choose often requires improvisation in the scenario response. Furthermore, when students role-play, much of the benefit is degraded because of the reduced realism that results from student inexperience. The Army's Videodisc Interpersonal Skills Training and Assessment (VISTA) project developers (Schroeder, Dyer, Czerny, Younling, and Gillotti, 1986) also noted that curricula requiring role-playing is costly and course designers experience the added difficulty of trying to determine and capture the proper subordinate simulations as they would probably respond in a given leadership situation. These disadvantages result in difficulty for students in transferring skills they practice in role playing to actual events. Wehrenburg (as cited in Sgro et al., 1986) suggested these drawbacks can be corrected by reducing the number of extraneous variables in the situation by using standardized video presentations.

3.   Simulation

Sgro et al. (1986) describe simulation as a teaching methodology that creates a training environment replicating the work environment as closely as possible on those dimensions affecting job performance. Simulations allow trainees to experience variables relevant in the actual work setting in order to develop skills that are needed for effective job performance. Simulations are like role playing exercises in that they allow students to

acquire "hands-on" leadership experience, but in a more realistic environment. Simulations also allow the students to gain insight and a sensitivity to the perception of others. They sharpen the analytical, decision making, problem-solving, and goal setting skills of leadership students, help students develop skills in dealing effectively with others, and develop skills in risk taking and conflict management (Parry as cited in Sgro et al., 1986). An old training axiom regarding simulation is "The closer the training is to the real thing, the better the student will be able to use his or her new skills back on the job" (Wehrenburg as cited in Sgro et al., 1986). Reigeluth and Scwartz (1989) contend that simulators are the most effective training media for providing realistic role-playing experiences because they sometimes provide the only opportunity for trainees to perform procedures under realistic conditions.

Simulations are primarily used for teaching complex motor skills or reflexes by using realistic equipment such as flight simulators or operating complex maintenance equipment. However, utilizing simulators to teach interpersonal skills and leadership is growing. Many simulations that teach interpersonal skills and leadership are included within computer-based instruction, but they also utilize educational games.[4] These games involve situations in which trainees must make sequential decisions and then live with decision consequences as the situation continues to unfold (Leavitt & Bass as cited in Bass, 1990). Bass (1990) suggested that because simulations are typically time compressed or are designed for high

---

[4]Educational games can be considered to be a branch of simulation. The main difference between games and simulations is that games introduce a competitive element into the experience (Romiszowski, 1988).

interactivity, outcomes from leadership performance have fairly rapid consequences. Success and failure are more fully objective and observable than is true for role playing in general (Bass, 1990). Furthermore, simulations allow students to practice interaction without having to deal with real-life consequences like irate customers or angry subordinates that result from decision making failures (Wehrenburg as cited in Sgro, et al., 1986).

Bass (1990) and Romiszowski (1988) noted the dearth of research to determine conclusively simulation effectiveness in teaching leadership. Furthermore, the studies that do exist have limited objectives, and add little value in validating simulation effectiveness as a teaching tool (Romiszowski, 1988). Raia (as cited in Bass, 1990) suggested that when compared to discussions and readings about cases, simulations, regardless of complexity level, can improve performance on a final examination about case problems. Despite the lack of conclusive data regarding simulation effectiveness, Romiszowski (1988) cites Gary Shirts, a leading practitioner in simulation, as saying that "They [simulations] create opportunities for learning which cannot be duplicated by any other pedagogical technique . . . If there is one consistent finding, it is that students and teachers rate them highly as interesting and worthwhile experiences" (p. 289).

Significant examples of games used to teach leadership or management include the American Management Association's Top Management Decision Simulation (Bass, 1990), Looking Glass (Bass, 1990; McCall & Lombardo, 1982), and Project Challenge (Thinking Tools, 1999). The Top Management Decision Simulation involves a simulation that confronts teams of players with sets of problems requiring them to make critical management

decisions at each successive play. The Looking Glass simulation, developed by Center for Creative Leadership (CCL), is a six-hour simulation of a moderately sized ($200M annual sales) glass manufacturing corporation (McCall & Lombardo as cited in Bass, 1990; McCall & Lombardo, 1982). It utilizes 20 participants assigned to management roles from President to Plant Manager. They are tasked with running the company for a day with feedback provided by a highly trained team at the end of the simulation. The simulation is based on extensive field interviews with executives, site visits, and technical and business publications, and is designed to provide a wide range of management problems and issues that occur on a typical, day-to-day basis. Events in the simulation are adapted from actual events experienced by executives. The Looking Glass simulation is designed to focus on the realities of managerial life rather than theoretical representations of reality. The CCL uses a "Teach for transfer" concept emphasizing the transfer of skills and lessons learned during Looking Glass to the student's real job.

Project Challenge, developed by Thinking Tools, teaches project management skills by simulating an Information Technology (IT) company, using Agent-Based Adaptive Simulation[5] (Hiles, 1999; Thinking Tools, 1999). The user assumes a project manager role and is tasked with managing an IT project including "monitoring its progress, communicating with team members and the sponsor, ensuring adherence to the schedule and

---

[5]An agent is an independent software "element" that reacts to changes in its environment by selecting new behaviors. The agent achieves a progressively better fit to a specific environment based on a hierarchy of goals programmed into the agent. Agent-based programming enables autonomous agents in each simulation to respond to user behaviors in unpredictable, but realistic, ways resulting in complex behaviors that mirrors real world events (Thinking Tools, 1999).

budget, and generally following solid project management practices" (Thinking Tools, 1999). The user is presented with scenarios that test his or her project management skills (Thinking Tools, 1999).

The Agent-Based Adaptive Simulation tool results in a unique scenario each time the simulation is run because interactions are not pre-programmed (Thinking Tools, 1999). Interactions depend on the program agents' attributes, player actions, and random events (Hiles, 1999; Thinking Tools, 1999). The embedded agent can be programmed to induce a degree of variability resulting in randomly selected scenarios. The agent can also be programmed to detect user vulnerabilities deduced from user behavior, and select the worst possible scenarios to strengthen the student's skills in solving those types of problems (Hiles, 1999).

The Project Challenge product uses animated characters. However, Agent-Based Adaptive Simulation can be implemented using various forms of media including video clips, audio, and so on, to fit the needs of the training program (Hiles, 1999).

4. Computer-Assisted and Programmed Instruction

a. *Programmed Instruction*

Programmed instruction involves designing instructional material into concrete steps requiring the student to select the correct answer to a question before moving on to the next step of training, allowing students to proceed in self-paced matter (Bass, 1990).

Programmed instruction is based on Skinner's learning theory which states that learning is most effective if (1) the information is presented in small steps, (2) the learners are given rapid feedback concerning their learning accuracy, and (3) learners are given the opportunity to learn at their own pace (Hergenhahn & Olson, 1997). Skinner (as cited in Hergenhahn & Olson, 1997) outlined the concept of programmed learning using a device called a "teaching machine" in 1958 when he wrote:

> The machine itself, of course does not teach. It simply brings the student into contact with the person who composed the material it presents. It is a labor-saving device because it can bring one programmer into contact with an indefinite number of students. They may suggest mass production, but the effect upon each student is surprisingly like that of a private tutor. The comparison holds in several respects. (i) There is a constant interchange between program and student. Unlike lectures, textbooks, and the usual audio-visual aids, the machine induces sustained activity. The student is always alert and busy. (ii) Like a good tutor, the machine insists that a given point be thoroughly understood, either frame-by-frame or set-by-set, before the student moves on. Lectures, textbooks, and their mechanized equivalents, on the other hand, proceed without making sure that the student understands and easily leave him behind. (iii) Like a good tutor, the machine presents just that material for which the student is ready. It asks him to take only that step which he is at the moment best equipped and most likely to take. (iv) Like a skillful tutor, the machine helps the student to come up with the right answer. It does this in part through the orderly construction of the program and in part with techniques of hinting, prompting, suggesting, and so on, derived from an analysis of verbal behavior . . . (v) Lastly, of course, the machine, like the private tutor, reinforces the student for every correct response, using this immediate feedback not only to shape his behavior most efficiently but to maintain it in strength in a manner which the laymen would describe as "holding the student's interest." (p. 105)

b.   Computer-Aided Instruction

Hergenhahn and Olson (1997) described computer-aided instruction (CAI)

as a way to present programmed instruction using a computer. Kearsley (1983), Hergenhahn and Olson (1997), and Maher and Stottler (1994) reported on the computer-aided instruction benefits based on recent research that reinforces Skinner's claims of the teaching machine benefits. The benefits cited include:

- It turns passive learning into active learning.

- It allows students to review difficult topics as many times as desired while skipping topics they understand.

- It allows students to learn at their own speed and manner as suited to the student's style.

- Students find the interactive nature (i.e., feedback, personal attention, exciting multimedia applications) of CAI more motivating and experience greater learner satisfaction than other forms of instruction.

- It ensures that all students receive standardized instruction, although the instruction is delivered at different times and speed.

- It has been shown to reduce training time by approximately 30 percent.

- It can be used to evaluate how well the information has been learned.

Fletcher (1996) evaluated the computer-based instruction effectiveness by conducting a meta-analysis of many previous studies. The meta-analysis methodology[6]

_____

[6]Fletcher (1996) described the meta-analysis process in the following way: The meta-analysis gathers studies relevant to the issue being investigated using clearly defined procedures that can be replicated. The effect size is calculated to determine the outcome of all studies. Statistical procedures are used to synthesize the quantitative measures and draw conclusions.

employs a measure called effect size,[7] which allows the researcher to combine the results of many dissimilar studies to draw a cumulative picture of the conclusions (Fletcher, 1996). Fletcher (1996) stated, however, that the disadvantage of using effect size is that it is not easily interpreted. The effect size interpretation is that the larger the effect size, the greater the technology's instructional impact (Fletcher, 1996). Fletcher (1996) found that:

- Technology can be used to teach.

- Technology improves instructional effectiveness. This conclusion was based on comparisons between conventional instruction techniques and computer-based instruction or interactive multimedia instruction. He came to this conclusion by performing his meta-analysis using 233 studies that evaluated elementary school, secondary school, higher education, adult education, and military training. He concluded that the average computer-based instruction effect size was 0.39 over conventional instruction techniques, which suggests an improvement from the 50th to the 65th percentile. This included 38 military training studies that had an effect size of 0.40, or an improvement from the 50th to the 66th percentile. Furthermore, the effect size of 47 interactive videodisc training studies was 0.50, which suggests an improvement from the 50th percentile to the 69th percentile.

- Technology reduces time to reach instructional objectives. He found that CBI reduced the time it took students to achieve instructional objectives by approximately 30 percent.

- Technology promotes equity in achievement. Fewer students are left behind since instruction is tailored to the student's individual needs and teachers are not teaching at the lowest common denominator.

- Technology appears to be equally effective for knowledge and performance

---

[7]The effect size is defined as the difference between the means of two groups divided either by the control group's standard deviation or the standard deviation of the control and experimental groups pooled together.

outcomes.

- Technology can be used to teach interpersonal skills, often called "soft skills." Schroeder, Hall, and Morey (as cited in Fletcher, 1996) used six studies that studied interpersonal skills training to conclude that interactive videodisc instruction had an average effect size of 0.38 and 0.20 over programmed text and role playing, respectively.

- Interactivity is important. Studies indicate that increasing interactivity increases student achievement.

- Simulation requires guidance. Interactive videodisc instruction that used simulation combined with tutorial guidance had effect size of 0.41 compared to simulation without guidance that had an effect size of 0.14.

- Student evaluations indicate they enjoy using the technology, which suggests a higher interest and motivation in learning.

- Technology lowers instructional costs. Fletcher found that the cost of instruction utilizing technology was 43 percent that of conventional instruction, and support cost of instruction utilizing technology was 16 percent that of conventional instruction.

- Utilizing CAI appears to be cost-effective when compared to other methods used to improve learning like tutoring (by peer and adults), reducing class size, or increasing instruction time by 30 minutes per day. Fletcher (1996) found that using peer tutors or computers are the least costly in terms of cost to raise grades by one standard deviation.

Still, the effectiveness of computer-aided instruction is not guaranteed and depends heavily on the content material to capture realism and make the material interesting, accurate, and instructional (Schroeder, et al. 1986). For example, Preston and Chappel (as cited in Bass, 1990) conducted one study that compared CAI, CAI with videotaped vignettes, and group discussion with videotaped vignettes. They found that any methodology improved performance on tests of knowledge about principles of leadership equally well. Barron

(1998) noted that one problem with CAI is the lack of technological capability to develop a convincing experiential learning medium because human interaction modeling remains elusive. He claimed that studies show students are easily put off by multimedia products that don't capture the reality of human interaction, and other seemingly superficial issues, like multimedia characters who do not resemble the organization's culture regarding dress or speech. Furthermore, Bass and Barret (as cited in Bass, 1990) discussed the difficulties that are confronted by program designers in attempting to write effective programs if the subject involves "shadings of opinion, sensitivity to fuzzy socio-emotional issues, and unclear ideas about the order of steps in which learning can take place." (p. 824).

c.   *Using Software to Teach Leadership*

The important question is; Can software be used to teach leadership? Several studies suggest they can, and several interactive multimedia instruction programs exist that prove effective. Using IMI to teach interpersonal skills is becoming more prevalent as computer systems with the technological capacity to effectively run interactive multimedia instruction and multimedia software become more affordable.

Lewis (1990) concluded that CBI is the best method for post-school house leadership training in the Navy's NAVLEAD program. This conclusion was based on using Gagne's five step model for choosing an effective training media, Gagne's learning outcome classifications (i.e., intellectual skills, verbal information, cognitive strategies, motor skills, and attitudes), and Chief of Naval Education and Training (CNET) media selection criteria.

Lewis (1990) suggested that CBI allows the student to learn the intellectual

skills required in the NAVLEAD program, and then demonstrate and apply the knowledge. CBI is also ideal for ships and shore-based units because it is portable, and can be individualized to maximize time efficiency while minimizing impact on the unit's schedule.

The Navy used a CAI system, PLATO, and an instructional program language, TUTOR, (Bass, 1990) to teach interpersonal skills in feedback, communication, goal setting, problem solving, decision making, effective rewards and punishments, and the use of power and authority for U.S. Navy commanders as far back as the 1970's (Hausser and Spenser as cited in Bass, 1990). They found that when compared to a control group who did not use CAI, but received the same pre- and post-test assessments, and were involved in the same duties as recruiting officers, those who were trained with CAI learned considerably more.

d.   *Interactive Videodisc as a Form of IMI*

Recent improvements in CAI and IMI integrate interactive video. Romiszowski (1988) describes interactive video as a form of audiovisual communication that interacts with the viewer. Current interactive videodisc systems include laser videodiscs linked to a computer that controls the content provided to the viewer. Besides the realism offered by videodisc technology, Romiszowski (1988) identified interactive videodisc advantages that include: a high storage capacity, storage flexibility (to store various forms of information), rapid access to information, robustness and long life, and low cost when mass produced. Howe (as cited in Romiszowski, 1988) suggested that interactive videodisc is especially useful when applied in human interaction simulations because it can present

55

people's verbal and non-verbal communication with realism, and present real-life settings for problems. Schroeder, et al. (1986) determined that computer assisted videodisc instruction provided the fast random access required to simulate the interpersonal interactions that represent actual leadership situations. Romiszowski (1988) noted that in addition to interpersonal skills training, interactive videodisc technology has been utilized most effectively in the medical field to teach diagnosis and treatment. However, like simulations and other forms of CAI, research on the effectiveness of interactive video is sparse because of its short history (Romiszowski, 1988).

e.   *Examples of Interactive Videodisc Products*

One interactive multimedia instruction training system that uses videodisc technology is called the Integrated Damage Control Training Technology (IDCTT), which was developed for the Navy (Coughlin, 1998). The IDCTT offers a realistic computer-based video technology designed to reduce the time required to train key decision-makers in the shipboard damage control organization. The IDCTT creates an interactive environment for trainees to experience real-time scenarios that include alarms, status reports, ship system configuration changes, and the consequences of trainee's actions. It requires the trainees to gather information, prioritize the impact of damage on ship's systems, and take action to minimize the spread of damage. The IDCTT is designed to complement the ship's training program by improving ship's damage control team member's performance without affecting the ship's schedule. This results in maximizing the training benefit of ship-wide damage control drills that are time consuming and costly.

Coughlin (1998) found IDCTT an effective training device. The IDCTT challenged shipboard personnel's thinking skills resulting in enhanced intellectual skills which benefitted the ship's damage control training program. IDCTT is engaging and stimulates user thought process development. The repetitive exercises contained within IDCTT prepares students for ship-wide integrated damage control drills while saving valuable training time. For example, IDCTT allows students and crew members to run through a computer-generated scenario in 15.5 minutes versus the 53.5 minutes required for a ship's drill.

An IDCTT user survey suggested they believed IDCTT provided a good platform for refresher training and initial qualifications. Users believed IDCTT provided effective learning by eliminating the wasted time when waiting for drills to start and cleaning up after drills. They also believed IDCTT allowed them to focus on drill actions with no anomalous distractions that occur during regular ship-wide drills. Overall, Coughlin's (1998) research suggested that IDCTT may contribute to higher performance on actual drills.

The Army developed the Videodisc Interpersonal Skills Training and Assessment (VISTA) project to use computer-assisted training and videodisc technology to teach leadership skills. The VISTA project developers sought to reduce the high training costs associated with junior officer leadership skills training after research showed that videodisc systems could be used successfully to train soldiers various skills including interpersonal skills (Schroeder, et al., 1986). The project involved developing nine interactive videodisc training scenarios covering 20 leadership problems presented as

realistic scenarios that an Army junior officer could encounter. Comparative evaluations between the VISTA project and other curricula that utilized role playing or programmed text indicated that VISTA was superior, followed by role playing and programmed text. Student evaluations indicated they preferred a mix of videodisc and role playing as the optimal form of learning.

The Ninth House Corporation developed an IMI product, Situational Leadership II, that uses interactive video technology for developing interpersonal skills based on Hearsey and Blanchard's Situational Leadership model (Mitchell, 1999). The program includes modules to determine the user's personality and learning style, called the Learning Style Indicator, based on Keirsey's personality profile (Ninth House, 1999). The Learning Style Indicator is used to assign a computer mentor, or teacher, best suited to the user (Mitchell, 1999; Ninth House, 1999). The user can review Situational Leadership lessons by participating in an interactive tutoring session that uses "parables," or stories. These stories illustrate the two management philosophies of Ken Blanchard and Tom Peters. Each training segment ends with exercises that reinforce the points developed in the story. The user can also participate in a simulation where he or she assumes the identity of a middle-level manager in a fictional mining company. The user is presented with six episodes of 45 minutes in duration, in which several scenarios are presented requiring the user to make decisions. The user's response to each scenario determines the episode's outcome. The program can track the progress of various users. The product also provides feedback to users and allows them to review lessons pertaining to specific weak areas. Furthermore, the

program provides support services that provide management advice to users, and a 360-degree feedback review.

5. Behavioral Modeling

Burke and Davis (1986) describe behavioral modeling principles as learning by watching and doing. These principles are similar to Bandura's observational learning theory (Hergenhahn & Olson, 1997). In behavioral modeling the student acquires desired behaviors by observing another person demonstrate them, and then reproducing those desired behaviors in a guided practice session.

Bass (1990) noted that experiential training approaches are favored over highly structured instructive lectures alone for leadership education and training, but new kinds of highly structured experiences, like behavioral modeling, have demonstrated desired training effects. He cited several studies that suggest behavioral modeling effectiveness in teaching leadership. For example, in one experiment conducted by Latham and Saari (as cited in Bass, 1990) subjects were given training that dealt with orienting new employees, giving, recognition, motivating poor performers, correcting poor work habits, discussing potential disciplinary action, reducing absenteeism, handling complaining employees, decreasing turnover, and overcoming resistance to change. Each session, two hours each week for nine weeks, followed the same plan: a film showing a model supervisor effectively handling a situation, followed by a set of three to six learning points that were shown in the film immediately before and after the model was presented. Then, group discussions on model effectiveness in exhibiting desired behavior to promote retention were conducted. Subjects

59

then role-played the desired behaviors in front of the class. Finally, feedback from the class about each trainee's effectiveness in demonstrating the desired behaviors was provided. Latham and Saari (as cited in Bass, 1990) found that positive reactions to the program were sustained over an eight-month period. Participants scored significantly higher on a test of knowledge necessary to transfer the principles learned in class to different types of job-related problems compared to the control group. The experimental group was also more effective in role playing to resolve supervisor-employee problems, and in earning higher job performance evaluations from their superiors one year after training as compared to the control group.

Burke and Davis (1986) used literature on behavioral modeling, research results on behavioral modeling, as well as the results from several industrial training initiatives that successfully implemented behavioral modeling at General Electric, AT&T, Westinghouse, Xerox, and Ford Motor Company to design a leadership training program for the Army called the Leadership Assessment Program (LAP). The LAP was designed as a performance-based system of selection and training for candidates and cadets in Army pre-commissioning programs that evaluated Army officer trainees on 12 leadership dimensions. It consisted of a series of Army job simulations in which trainees assumed the role of an Army Second Lieutenant. The LAP assessed the participant's potential as future officers in decision making, supervision, communication, and other military leadership dimensions.

Training lessons on each of the LAP dimensions incorporated behavior modeling principles, which included: (1) modeling the behaviors to be learned, (2) behavior research,

(3) performance feedback, and (4) transfer of training. Each lesson was prepared as a self-instructional audio-visual unit. The program modeled desired behaviors by depicting Second Lieutenant actors interacting effectively in realistic leadership situations with subordinates, peers, and superiors. Course developers achieved behavior rehearsal by requiring the student to assume the leader's role in the scenario and selecting an option for scenario resolution from a workbook at different points in the video. A narrator provided feedback for the options chosen.

Bass (1990) noted that behavior modeling may produce unwanted results. He referred to a study by Manz and Sims (as cited in Bass, 1990) utilizing contingent-reward, contingent-punishment, and goal-setting leadership models. They found that using behavioral modeling to teach the contingent-reward model promoted contingent-reward behavior. However, using behavioral modeling to teach the contingent-reprimand leadership model resulted not only in increased reprimand use by subjects, but also reduced the contingent-reward and goal setting use by those subjects. Thus, Bass (1990) concluded that the theoretical basis for the modeling must be considered in determining whether behavioral role modeling will be productive or counterproductive.

6. Summary

The Naval Academy relies heavily on the lecture and discussion methodology to teach all leadership courses in the leadership curriculum; it uses the case study methodology for teaching leadership in the "Ethics and Moral Reasoning for the Naval Leader" (NE 203) course; it makes limited use of role playing and simulations in "Applications and Visions

for Naval Leadership" (NL 302); it uses role playing in "Law for the Junior Officer" (NL 400); and simulations in the Junior Officer Seminar leadership capstone courses. Other methodologies for teaching leadership, like computer-assisted instruction or behavioral modeling, are not utilized.

This section presented several methodologies used to teach leadership. Additionally, several leadership development projects were presented to illustrate either the methodology being implemented using IMI, or the ability of implementing the methodology using IMI.

7.   On-The-Job Leadership Training

Bryson and Kelley (1978) suggested that leaders go through development stages. This developmental learning process occurs in such a way that capacities and skills that are gained in one stage prepare the adult leader for new and bigger tasks and responsibilities in later stages. Bass (1990) suggested that adult leader development is largely a matter of self-development abetted by opportunities provided by the organization. Both of these theories are consistent with the Naval Academy's building block approach (Katz, 1987) to leadership development. Therefore, experientially based on-the-job training techniques is important for teaching leadership.

a.   Learning From Experience

Bass (1990) noted that much learning can be achieved from experience. He referred to research indicating that high performing leaders drew many more lessons from experiences considered to be failures or mistakes than did low performers. Learning from experience includes vicarious learning by observing the experiences of peers and superiors

(Bass, 1990). When discussing the importance of learning from experience, Lombardo (as cited in Bass, 1990) stated that it is necessary for successful executives to understand what went wrong, accept consequences, and avoid similar circumstances in the future. Furthermore, a study conducted at Honeywell (Bass, 1990) indicated that on-the-job experiences were the primary source of development of managerial knowledge, skill, and ability, including effective decision making and problem solving, communication, delegation, empathy, and conflict resolution. Other studies suggested practical experiences help leaders learn topics that cannot be easily replicated or anticipated in formal training situations like handling ambiguous situations (Bass, 1990), or teaching new members the organization's cultural aspects (Schein, 1992). These situations also include dealing with pressure (Rudman, Ohlott, & McCauley as cited in Bass, 1990), overcoming a company's past problems, or dealing with resistant staffs (McCall & McCauley as cited in Bass, 1990).

Kennedy (1998) cited learning from experience as the most significant learning mechanism for developing leadership skills. Learning from experience is also a primary strategy used by the Naval Academy in its formal leadership development program.

b.   *Coaching and Mentoring*

Bass (1990) defined coaching as "training that . . . provides guidance and feedback about specific efforts involved in a task, the performance of a job, and the handling of assignments" (p. 833). Bass (1990) emphasized that coaching can be effective or ineffective depending on the relationship between the coach and the subordinate, and that coaching works best during periods of individualized instruction. Coaching factors that

contribute to leadership development include (1) emphasizing self-development, (2) offering recommendations for improvement, (3) conducting regular coaching interviews, (4) listening, (5) delegating and challenging subordinates to perform, (6) setting realistic standards (Mill as cited in Bass, 1990).

Bass (1990) defined mentoring as "advising and guiding education and career development" (p. 833). Mentoring offers many of the same benefits as coaching, but tends to be more paternalistic (Levinson, Darrow, Klein as cited in Bass, 1990) than coaching, and includes greater emotional bonds (Zaleznik as cited in Bass, 1990). Mentoring also provides a role model for the protégé to follow (Levinson, Darrow, Klein as cited in Bass, 1990). Bass (1990) cited research indicating coaching and mentoring are effective in developing leaders and improving leader performance.

The Naval Academy uses an informal coaching and mentoring system (Katz, 1987). COMDTMIDNINST 1600.2 (1998) states that the officers assigned to the Commandant of Midshipmen are responsible for providing midshipmen with advice, counsel and guidance to further the development of their military performance, to observe and evaluate their performance in all areas, and to serve as examples for emulation by the midshipmen. Midshipmen cite coaching and mentoring, as a function of observing and interpersonal interaction, as a mode for learning leadership (Kennedy, 1998).

c.   *Job Rotation*

This leadership training method involves rotating trainees to various job positions within the organization in order to provide a greater opportunity for experiential

learning (Bass, 1990). Trainees are afforded the opportunity to observe the leadership styles of more leaders. The trainees are also exposed to diverse leadership situations and organizational issues. Additionally, the organization benefits by developing leaders who have experienced the problems specific to particular sections of the organization, and have personal knowledge in each area. Research indicates that managers tend to be more satisfied with opportunities for self-actualization if they are rotated to new positions frequently (Bass, 1990).

The Naval Academy utilizes job rotation in its leadership development program. For example, recall that midshipmen may be assigned to several positions of authority during summer training programs. Furthermore, midshipmen are assigned to Brigade chain of command positions for one semester in order to maximize the leadership opportunities for all midshipmen (COMDTMIDNINST 1601.12, 1996). Midshipmen cite job rotation, as a function of experience, as a mode for learning leadership (Kennedy, 1998).

d. Survey Feedback

Bass (1990) stated performance feedback is critical if learning is to occur from work experiences and is the main reason why it is included as a standard part of many contemporary leadership development programs. Research suggests that leaders who receive feedback experience greater performance improvements than leaders who do not receive feedback (Argyris; Bass & Avolio; Bowers; Deets & Morano; Mann; May & Kruger; Yukl as cited in Bass, 1990).

The Naval Academy provides midshipmen with several feedback types. The

formal feedback methods used at the Naval Academy to develop leadership skills are periodic fitness reports, counseling sessions, and a 360-degree feedback system.[8] Informal feedback methods include informal personal interactions with peers, subordinates, and superiors.

COMDTMIDNINST 1610.3 (1998) describes the basis for the midshipman periodic fitness report:

> Article 1129, U.S. Navy Regulations, 1990, requires that records be maintained on naval personnel "which reflect their fitness for the service and performance of duties." Midshipmen fitness reports (FITREPS) are used for many professional actions during four years at USNA, including service assignment, advanced training, and selection for leadership positions. Timely, realistic, and accurate reports are essential for each of these tasks. The Military Performance System evaluates midshipmen in everything done outside of the classroom and reflects the developmental process of midshipmen becoming officers over the intensive, four-year, USNA program. It includes military training, physical training, and the inculcation of the ideals of the naval profession. The goal of the Military Performance System is to produce self-confident leaders who accept and are fully ready to perform their responsibilities both to the nation and to the men and women entrusted to them.

The midshipman fitness report is a competency-based report listing twelve traits the Naval Academy considers essential for successful leadership. The traits are similar to those found on the Navy's Officer Fitness Report (NAVPERS 1610/2, 1995). However,

---

[8]The title 360-degree feedback program is a misnomer. A true 360-degree feedback program includes information from a subject's superiors, peers, and subordinates. The system used at the Naval Academy is actually a 180-degree feedback program because it uses information from subordinates and some peers only. The entire performance system, including the fitness reports, counseling, and 180-degree program, can be considered to be a 360-degree feedback system.

the midshipmen fitness report does not include characteristics like professional expertise, mission accomplishment and initiative, and tactical performance. The midshipmen are evaluated on the degree to which they demonstrate each trait using a five-point Likert scale that includes Not Observed, Below Standard, Met Standards, Above Standards, and Exceeds Standards (COMDTMIDNINST 1610.3, 1998). The fitness report also evaluates the degree to which a midshipman's subordinates demonstrate the twelve traits, implying a leader's performance is also measured by his or her subordinate's performance. The performance characteristics are used to rank the midshipmen against their peers, and justify the midshipman's performance grade. A description of the twelve performance characteristics is provided in Appendix B.

Officers and senior enlisted advisors counsel midshipmen to provide verbal feedback on their military performance (COMDTMIDNINST 1600.2, 1998). The counselors are required to counsel each midshipman at least once per semester, or more often if midshipmen exhibit inadequate performance (COMDTMIDNINST 1600.2, 1998). The counseling system lays the groundwork for an effective, productive working relationship between the counselor and the midshipman (COMDTMIDNINST 1610.3, 1998), and is intended to accomplish the following objectives:

- Clarify the counselor's expectations, and ensure the midshipmen understand those expectations.

- Set goals, and develop plans to achieve those goals.

- Convey the counselor's interest and concern in the midshipman's success.

- Help the midshipmen understand the counselor's leadership style.

- Motivate the midshipmen to achieve the highest possible level of performance.

- Ensure that midshipmen understand the mission and status of the unit and his or her primary and collateral duties.

The midshipmen 360-degree program provides subordinate feedback to midshipmen leaders (COMDTMIDNINST 1610.30, 1998). Subordinates are asked to evaluate their midshipman leader, using a ten-point Likert scale, in five areas: individual character, setting the example, developing subordinates, upholding standards, and leadership. The subordinates are also afforded the opportunity to provide short anecdotal comments on his or her leader's performance. The information developed in the 360-degree program is used during counseling sessions. Each midshipman conducts a self-assessment that is compared to the average score given by subordinates. The midshipman can also compare his or her score to the average score within the platoon, company, or battalion. Furthermore, the midshipman can also see his or her average score based on subordinate class (e.g., aggregate score of all First-Class, Second-Class, Third-Class, and Fourth-Class who evaluated the midshipman).

The 360-degree feedback system allows the midshipman an opportunity to find out how his or her leadership style is perceived among his or her subordinates. The information cannot be used as justification for performance characteristics on the fitness report, except for determining a grade for Block 30, Leadership Development (COMDTMIDNINST 1610.30, 1998). The questions used to evaluate the five areas are

presented in Appendix C.

Bass (1990) believes feedback should cover the recipient's observed behavior, rather than the recipient's personality, motivation, or intentions. However, Bass' belief is not universally accepted. The leadership competencies upon which midshipmen performance is evaluated are based on several personality and motivation factors. DuBrin (1997) articulated a position consistent with the Naval Academy's philosophy by stating "Most successes and failures in people-contact jobs are attributed largely to interpersonal skills, and personality traits are an important contributor to interpersonal, or human relations, skills" (p. 104). Goleman (1998) concluded that a more relevant indicator of future success in any profession is not academic or technical knowledge, but what he calls "emotional intelligence" which is based on personal qualities like initiative, empathy, adaptability and persuasiveness. Therefore, it is important to ensure that a feedback system for developing interpersonal skills includes constructive comments on personal qualities like personality, motivation, or intentions.

C.   SUMMARY

This chapter was designed to determine whether or not an IMI leadership program can be developed. Several areas were investigated to answer this question. First, learning theories, as well as methods midshipmen use to learn leadership, illustrated that the learning theories used at the Naval Academy are consistent with IMI development. Second, several leadership training methods were presented to determine their effectiveness in teaching

leadership, and assess if they could be integrated into an IMI program. Several leadership development programs illustrated two points: (1) the methodology has been successfully implemented using IMI, and (2) the ability to implement the methodology using IMI exists. Third, the methods used by the Naval Academy to teach leadership were reviewed. Literature presented to discuss each of these areas supports the conclusion that an IMI leadership program can be developed to teach leadership at the Naval Academy.

Several difficulties were noted to exist with IMI technologies. One problem with IMI is the lack of technological capability to develop a convincing experiential learning medium because human interaction modeling is so complex. Furthermore, it was noted that difficulties exist when developing programs on a subject that involves "shadings of opinion, sensitivity to fuzzy socio-emotional issues, and unclear ideas about the order of steps in which learning can take place" (Bass & Barret as cited in Bass, 1990, p. 824). Therefore, the next question to address is, how can we develop an IMI program to teach leadership at the Naval Academy?

III. DEVELOPING AN IMI LEADERSHIP PROGRAM

A. INTRODUCTION

This chapter is designed to answer the second primary question: How to develop an IMI product consistent with the Naval Academy's leadership philosophy and beneficial to the midshipmen? To answer this question, several subordinate questions are addressed. These questions help resolve issues dealing with scenario development, modeling student personality into the IMI program, and performance measurement and feedback. The analysis conducted in this chapter contributes to the analysis and design phases of the ISD/SAT process discussed in Chapter I.

In this chapter's first section, scenario development is discussed. The Naval Academy's learning objectives are identified and evaluated. Next, recommendations are presented to integrate leadership learning objectives with scenarios to achieve desired leadership development outcomes. Then, existing leadership programs are reviewed to explore various methodologies for scenario development. A recommendation for a scenario development methodology is presented. Finally, two methodologies are introduced that allow an IMI program to select future scenarios based on decisions in previous scenarios.

Next, personality modeling methods are investigated by analyzing techniques used in existing programs. Recommendations are presented to utilize personality modeling in the IMI leadership program.

In the last section, performance measurement and feedback are discussed. First, a

previous study on performance measurement at the Naval Academy is reviewed to identify factors that improve performance measurement and feedback. Then, studies that assess the Naval Academy's performance measurement system effectiveness are discussed. Performance measurement and feedback methods used in existing leadership development programs are then discussed. Finally, recommendations are presented on performance measurement and feedback for the IMI leadership program.

B.   SCENARIO DEVELOPMENT

Fiedler (1996) argued that improvements in leadership training require that practitioners focus research on methods integrating situational components into leadership training. An important aspect of training development is determining the type of scenarios to include, such that it reinforces the leadership theories and desired leadership traits taught at the Naval Academy.

1.   Learning Objectives, Theories of Leadership, and Scenario Options

The Naval Academy's leadership development objectives, described in Chapter I, include providing midshipmen with a fundamental understanding of many leadership theories and principles in order to supply them with a "toolbox" of leadership skills (Andersen, 1998). Another objective is to provide midshipmen with opportunities to practice their leadership skills.

The leadership curriculum objectives include developing an understanding of the Navy core values, citizenship, the professional military officer, individual human behavior

as it relates to the naval service, ethical dilemmas, and moral dilemmas with applications for the naval service (Curriculum-21 Committee, 1998). The curriculum objectives also include developing advanced leadership skills with an emphasis on understanding the dynamics of group settings (Curriculum-21 Committee, 1998).

Each of these objectives develop leadership competencies, or "officer-like qualities" (COMDTMIDNINST 1600.2, 1998), that the Naval Academy believes are needed for successful leaders in the fleet. The competencies were identified in Chapter II and are included in Appendices B and C.

If the Naval Academy leadership objectives are satisfied, midshipmen, as future naval officers, should theoretically utilize the appropriate leadership theory and leadership competencies in the fleet, depending on their evaluation of the situation (Andersen, 1998).

Using a competency approach to leadership training is not universally accepted. Parker (1981), in evaluating the Navy's defunct Leadership and Management Education and Training (LMET) Program,[9] cited several problems that he attributed to its competency-based nature. Although the Naval Academy never implemented the LMET program, some problems Parker identified exist in the Naval Academy's approach to leadership training. One problem, in particular, concerns the Naval Academy's performance measurement system

---

[9]The LMET program was a competency-based leadership program designed by the Navy based on McClelland's motivational theory (Parker, 1981). Navy officers and enlisted personnel were required to attend LMET classes. The LMET goals were to identify leadership requirements of each Navy job, establish standards by which leadership performance of each person would be judged, and then provide that person with the required skills. The major focus of LMET was to provide sailors with leadership skills appropriate for their job and provide periodic training throughout their careers (Parker, 1981).

in that adequate linkages between general outcome expectations, curriculum content, and skills to be acquired do not exist. In other words, a measure of effectiveness does not exist to determine if students are able to apply the leadership competencies successfully to appropriate situations. For example, the midshipmen fitness report and 360-degree feedback questionnaire both indicate that "micro-management" is an inappropriate trait for successful leaders to possess. However, there is no situational component with which to associate "micro-management." In fact, there are times when a successful leader must exercise close supervision, especially if the subordinate is not sufficiently trained to perform the task at hand, if the evolution is dangerous, or the risk of failure is high.

Parker (1981) stated that the competency-based approach for leadership development contradicts most currently accepted leadership theories because it does not pay enough attention to situational components of leadership. According to Parker (1981), competency-based training programs do not require adequate demonstration of competencies, and are generally based on the belief that if a person possesses a skill, knowledge, and thought patterns, he or she knows how to employ them.

Leadership training developers increasingly believe that a leadership model that does not take the situation into account limits the model's value (Parker, 1981). Vroom (as cited in Parker, 1981) suggested leadership training must take into account personal attributes and situational variables:

> Evidence to the effect that the relationship between leader behavior and group or organizational performance varies with the situation makes it necessary to include the situation . . . as a set of moderating variables which interact with leader behavior in determining organizational outcomes. The situation not

only influences the patterns of leader behavior which will be exhibited but also influences the consequences of that behavior (p. 209-210).

Developing appropriate learning objectives, therefore, commences with an assessment phase (Parker, 1981), corresponding to the analysis phase of the ISD/SAT process, to examine the Naval Academy's leadership development goals and the factors affecting those goals. The process must consider the tasks performed by midshipmen and skills required to perform the task, then assess the midshipmen to determine what skills they possess and what skills they need. The analysis phase provides information to establish behavioral objectives (Parker, 1981), which are precise statements of what the graduate midshipmen will be able to do. Behavioral objectives serve as a basis for training design and criteria to measure performance (Parker, 1981).

Once behavioral objectives are developed, Kolodner, Henelo, and Narayanan (1996) recommend building a system where students learn by tackling complex, but meaningful problems. They believe that motivation is diminished if students do not perceive they can solve authentic problems. Therefore, learning can happen only if students capitalize on the opportunity to be successful. Furthermore, they suggest that experience alone does not lead to learning. Leadership development programs must support learning by encouraging reflection on the experience. Recall that reflection is considered an important component in the Experiential Learning Model, a major method of learning for midshipmen (Kennedy, 1998). Kolodner, Hmelo & Narayanan (1996) conclude computer-based modeling and simulation provide tools to allow students to address hard problems, solve them and reflect, thus leading to deep transferrable knowledge.

Kolodner, Hmelo, and Narayanan's (1996) conclusion is repeated by Reigeluth and Schwartz (1989) who hypothesize that active practice is a key instructional variable in cognitive training. In their research, Reigeluth and Schwartz (1989) stated that teaching cognitive skills includes two learning phases, acquisition phase and application phase. In the first phase students obtain basic knowledge. In the second phase students learn to apply learned principles to situations. Active practice (i.e., role playing) is needed to complete the application phase because it allows students to understand and integrate the underlying principles.

Therefore, any IMI leadership program must include learning objectives that take into account leadership theories taught at the Naval Academy, and also the situational components of leadership. Such a leadership program ensures that the student not only possesses the skill, knowledge, and thought patterns necessary, but also that he or she knows how to employ them.

These situational components of an IMI leadership program must include complex but meaningful problems that allow the student to reflect on the experience. The options for each scenario's resolution must cover an appropriate range of leadership styles. The options must lead to outcomes that comport with current theories of leadership. Finally, options must provide realistic consequences.

2. Reviewing Methodologies for Scenario Development

Chapter II included examples of several IMI programs that utilized scenarios including the VISTA program, IDCTT, Situational Leadership II, the Leadership Assessment

Program (LAP), Project Challenge, and the U.S. Army ROTC Leadership Development: A Performance-Based Program. The IDCTT involved damage control procedures that are well established and not as subjective as leadership scenarios. While the sophistication of IDCTT in interactivity and realism can contribute to an IMI leadership development program, it does not contribute to scenario development when a vast array of leadership theories and complex interpersonal skills are involved. The Situational Leadership II program also provides a useful example of a sophisticated IMI program, but it was developed based on a single theory of leadership. The three remaining programs, the U.S. Army ROTC Leadership Development: A Performance Based Program, LAP, and VISTA program, all provide valuable insights into developing scenarios when a diverse set of leadership theories are used. Each of these programs established learning objectives, scenarios, and options based on multiple leadership theories. The programs utilized an analysis that linked pertinent leadership theories with behavioral objectives to develop scenarios. The scenario development methodologies for these three programs are discussed to present a "best practices" approach to methodology selection.

The staff who developed the U.S. Army Leadership Development: A Performance-Based Program (Sgro et al., 1986) interviewed 1,000 Army personnel of various ranks to gain a thorough understanding of a platoon's operational setting and the problems experienced by platoon leaders. The interviews identified the traits and skills required by young Army officers, which were used to design learning objectives. The course developers used the interviews to develop competencies considered important for effective platoon leadership.

The competencies contributed to behavioral objectives from which case studies and role-playing exercises emerged.

The Leadership Assessment Program (LAP) (Burke & Davis, 1986) designers conducted a comprehensive job analysis by interviewing Army First Lieutenants and Captains who supervised Second Lieutenants to determine the leadership skills that junior officers needed to possess to be effective leaders. The program developers created scenarios by convening a panel of officers who were experienced in dealing with the situations encountered by Second Lieutenants. The panel provided suggestions on appropriate content for video vignettes to illustrate the learning objectives for each leadership dimension taught. The program developers used the suggestions to write scripts, which the panel reviewed for accuracy. Cadets at ROTC units tested the scripts and provided feedback about the materials. This process followed the methodology identified by Parker (1981): developers conducted an analysis to identify the leadership skills required for success along with skills that were lacking. The analysis resulted in learning and behavioral objectives, used to create scenarios.

The VISTA program (Schroeder et al., 1986) also used the analysis methodology advocated by Parker (1981) to identify skill requirements and weak areas for learning and behavioral objectives. The VISTA program developers created scenarios by identifying the most significant interpersonal problem areas for junior officers. They interviewed 18 Army personnel of various ranks using open ended questions to identify critical interpersonal or leadership situations that a new Infantry Second Lieutenant would likely encounter on the job. The interviews resulted in a list of 87 items that was eventually condensed to 57 critical

situations. The program developers developed a survey to rate the critical situations on difficulty, importance, and frequency. They used the survey, which was administered to 58 Army junior officers, to select ten top problem areas to be developed as themes for scenarios.

Because of the diverse nature of leadership and counseling theories used by the Army, the VISTA program developers utilized several sources to ensure leadership and counseling theories reinforced in the program mirrored the Army's leadership philosophy. The counseling and leadership theories considered is listed in Appendix D. The program developers referred to published Army leadership doctrine. The VISTA program designers also utilized active and retired officers, and non-commissioned officers from the U.S. Army Infantry School Leadership Department, as subject matter experts. The subject matter experts determined the best way to handle a given problem, evaluated incorrect choices, and determined consequences of choices based on their practical leadership experience and knowledge of leadership theory. Army agencies like the Judge Advocate General, and non-military agencies like the American Red Cross and the Army's Community Mental Health Center, provided insight to special interest areas. The developers also used general theoretical counseling literature to develop behavioral alternatives and their positive or negative consequences.

Developing each scenario to utilize all possible counseling and leadership theories was considered as unrealistic as selecting one leadership theory. Therefore, the VISTA program developers selectively drew upon various principles deemed relevant and applicable to the particular situation.

The VISTA developers utilized a seven step process to design scenarios. This process is illustrated in Figure 6. Using a topic area as a starting point, the subject matter experts would develop a realistic situation and learning objectives for the scenario. The subject matter experts used the resources discussed earlier combined with their experience to create what Schroeder, et al. (1986) referred to as an ideal linear correct path that led to an ideal solution. The ideal linear correct path was a realistic dialogue that covered the learning objectives, was consistent with leadership theories, and resolved the problem to the extent a Second Lieutenant would be able to resolve it. The subject matter experts then evaluated each of the Second Lieutenant's responses along the ideal linear correct path to develop positive feedback. Then, subject matter experts created incorrect alternatives and their consequences, ensuring both were realistic and based on common mistakes. This process continued until the scenario concluded.
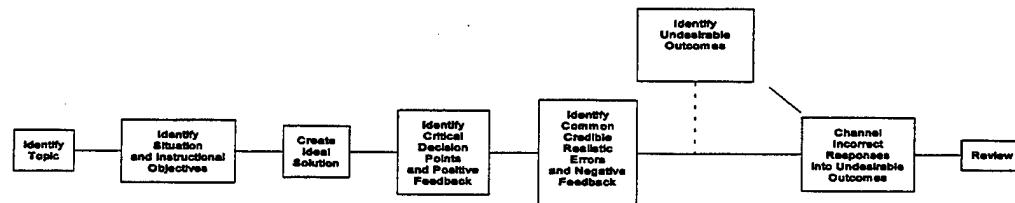

Figure 6: Scenario authoring flow chart
Source: Schroeder, et. al. (1986)

Other leadership development programs are using subject matter experts to develop

scenarios. For example, the Navy's Leadership Continuum[10] program is undergoing revision using subject matter experts (Jorgensen, 1999). The program developers are revising the curriculum to teach the existing Leadership Continuum course content with a more experiential approach by relying more heavily on role-playing. The program designers are utilizing a group of subject matter experts consisting of experienced officers and non-commissioned officers to develop scenarios based on their experience to reinforce existing Leadership Continuum topic areas.

The methodology of using an ideal linear correct path is important to understand. The mathematical permutations of possible options a student can make increases exponentially as the number of scenarios increases (Allely, 1999). This phenomenon has two consequences. First, the program complexity reaches the limits of current technologies. Second, the student's previous decisions can lead him or her so far off the ideal path that learning objectives are not achieved. Therefore, a scenario development methodology that allows remediation back to the ideal learning path, or expert path (Allely, 1999), is necessary to maximize training value.

3.   Choosing a Scenario Development Methodology

All three leadership development programs examined in detail included an analysis

---

[10]The Leadership Continuum is a successor program to LMET. The Leadership Continuum is a series of leadership training classes, each two weeks in duration, that Navy personnel attend periodically throughout their careers. The courses are designed to be progressive, meaning each successive class builds on previous classes and develops leadership competencies appropriate for the student's level of seniority. The curriculum is based on four themes: (1) Navy values, (2) responsibility, authority, and accountability; (3) unity of command, Navy, and the services, and (4) continuous improvement and risk management (Taylor, 1999).

phase that identified leadership development goals. The program designers used the analysis phase to identify the skills needed by junior officers, to evaluate the skills the junior officers already possessed, and then to determine the skills they needed. They each used the analysis phase to develop behavioral objectives to provide guidance in creating scenarios to teach students how to apply concepts they learned. Furthermore, the objectives and scenarios in the U.S. Army ROTC Leadership Development Performance-Based Program, LAP, and VISTA programs were consistent with the Army's diverse leadership and counseling theories.

An IMI leadership program that relies on a wide and diffuse array of leadership concepts and models, like those taught at the Naval Academy, requires a scenario development approach similar to the products presented in the previous section. Scenario development must link learning objectives and leadership theory to behavioral objectives to ensure midshipmen can apply the concepts taught to them.

In order to create effective scenarios, leadership skills and traits required for effective junior officer leadership must be identified. Many of these skills and traits are already identified in the existing midshipmen performance measurement like the midshipmen fitness report and 360-degree feedback program. However, interviews and surveys from fleet commands who receive junior officers after they graduate from the Naval Academy must be included to identify additional skills needed by junior officers. Additionally, the existing learning objectives must be reviewed.

Next, behavioral objectives must be identified to translate how the desired skills and

traits are used in realistic situations. Once the behavioral objectives are defined, measures

of effectiveness can be created and feedback can be designed to show the midshipmen and

the Naval Academy whether or not the midshipmen possess the appropriate traits or skills,

and whether or not they can utilize them properly.

Subject matter experts are required to develop realistic scenarios that synthesize the

leadership and counseling theories with the leadership attributes being developed. These

subject matter experts must be familiar with Naval Academy leadership and counseling

theories. They must have experience by teaching or studying the Naval Academy leadership

development program, and be assigned to the Naval Academy long enough to understand its

culture. Finally, they must bring operational experience at sea in order to understand

leadership issues in the fleet, including the consequences of various leadership styles and

scenarios.

4.   Choosing Follow-On Scenarios

None of the programs reviewed previously are designed to run over a long period of

time. They also do not link the decisions and outcomes of one scenario set to the selection

of future, unrelated scenarios. In other words, when a scenario or lesson topic is completed,

the program moves on to the next scenario without carrying forward the consequences of

previous decisions.

Integrating the consequences of previous scenarios is a critical component of an IMI

program because it adds realism. Furthermore, midshipmen must understand how their

decisions and leadership styles affect their ability to lead over a long period of time, rather

than in isolated scenarios that continually start with a blank slate, or tabula rasa. For example, a midshipman may be presented with a scenario on a subordinate's inadequate performance. A sophisticated IMI leadership program uses the scenario results to select future scenarios dealing with that particular subordinate, the division, or the midshipman's superiors depending on the midshipman's decision. Furthermore, a realistic IMI program should be designed such that some scenarios are not completely resolved. As in most real-life situations, these situations should be interspersed with other scenarios and may re-appear at a later date, or in association with a related scenario. In the example just presented, the midshipman's decision in dealing with a subordinate's inadequate performance may result in a later scenario involving the subordinate acting in response to the decision. The consequences of the midshipman's decision can also manifest themselves in scenarios involving the midshipman's superior officers, or his division. The capability to illustrate the cause and effect relationship of a midshipman's decision on leadership situation outcomes facilitates the Experiential Learning Model's reflective phase.

One possible solution to this problem is utilization of case-based reasoning (CBR). CBR is a field of artificial intelligence (AI) that solves current problems by retrieving the solution to a previous similar problem and altering that solution to meet current needs (Maher & Stottler, 1994). It can be used to select follow-on scenarios based on a similar principle. CBR analyzes previous student decisions and performance measurement information to determine a leadership style. It uses the information to determine the type of scenarios that are indicative of the leadership style. For example, if a student's decisions in

previous scenarios resulted in a low score in teamwork or delegation, the CBR algorithm starts to select scenarios that result from that leadership style. In other words, the student may find him or herself having to deal with more scenarios involving morale or unit cohesion.

Another technology that can be used to select follow-on scenarios is the Agent-Based Adaptive Simulation technology (Thinking Tools, 1999), introduced in Chapter II. The agents[11] can be programmed to monitor midshipman actions and select scenarios according to a pre-programmed hierarchy of goals (Hiles, 1999). Hiles (1999) uses a fire analogy to describe how agents simulate real-life leadership situations when choosing follow-on scenarios. At first, the problem is nascent and only noticeable to the most experienced leaders. Eventually, there is a wisp of smoke, still undetectable to all but the most experienced (who at this point usually start to take action). Eventually there is a lot of smoke, and soon a raging fire. The student's objective is to detect the "fire" as soon as possible and extinguish it. Therefore, situational evaluation is important and contributes to diagnostic skills development (Hiles, 1999).

A program that integrates previous decisions to determine future scenarios may be technically difficult to accomplish if not designed properly (Allely, 1999). The mathematical permutations of possible scenario paths blossom beyond current technical capabilities as the

---

[11] Recall from Chapter II that an agent is an independent software "element" that reacts to changes in its environment by selecting new behaviors. The agent achieves a progressively better fit to a specific environment based on a hierarchy of goals programmed into the agent. Agent-based programming enables autonomous agents in each simulation to respond to user behaviors in unpredictable, but realistic, ways resulting in complex behaviors that mirrors real world events (Thinking Tools, 1999).

situation progresses and the number of decisions branches evolve (Allely, 1999). Furthermore, the assumption that subject matter experts can accurately determine the cumulative effect of many decisions to create future scenarios is unrealistic, especially for such a subjective training topic (Allely, 1999).

Utilizing past decisions to select future scenarios presents several training impediments (Allely, 1999). The student's decisions eventually result in a situation where he or she is only experiencing one type of leadership style, rather than exposed to as many scenarios as possible. An example, illustrated in Figure 7, clarifies this point. The example shows a student deviating from the expert path and ending up at a final outcome. The final outcome is important for reflecting on the consequences of the midshipman's leadership style and providing the Naval Academy with the midshipmen's ability to apply leadership theories. However, this method does not expose midshipman to many other scenarios that might prove beneficial to leadership development. After all, allowing midshipmen to experience real fleet problems is one of the benefits of an IMI program. Furthermore, the emotional impact of learning about consequences of past decisions may be lost on midshipmen if the final outcome cannot be linked to the specific decisions that caused them, or if the final outcome is too distant in time from the past decisions.
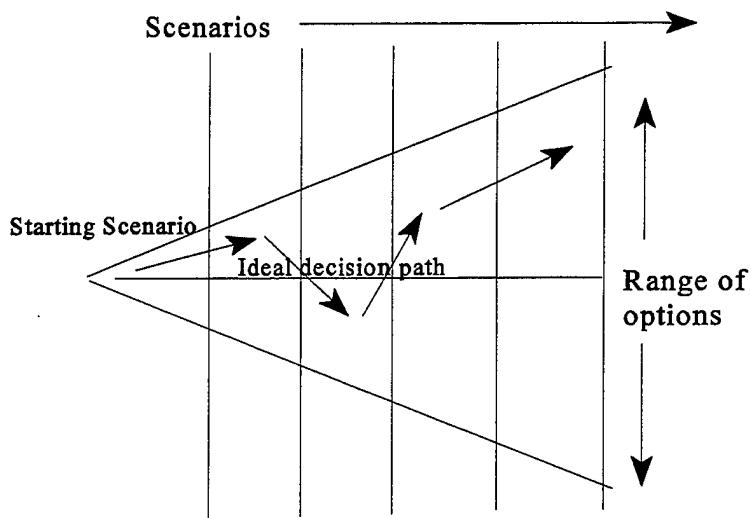
Figure 7: Effect of decisions on future scenarios
Source: Dr. E. Allely (1999)

From a pedagogical standpoint, then, the most effective training method may be to expose midshipmen to as many types of scenarios as possible, to learn how to resolve each situation correctly (Allely, 1999). Therefore, one method for selecting follow-on scenarios follows the VISTA and IDCTT methodology in which students are allowed to deviate from the expert path, but are remediated back to the path if they start to stray too far and risk failing to achieve learning objectives (Allely, 1999). Another method employs a scheme that chooses follow-on scenarios such that the student is exposed to all scenarios for each type of learning objective (i.e., the path would be vertical through each scenario in Figure 7 instead of immediately jumping from one scenario to the next) (Allely, 1999). A third method allows for realism by using previous decisions and continuing scenario story lines

without locking midshipmen into a particular path. Certain decisions or scenario outcomes would be tagged and used to select the appropriate follow-on scenario later without requiring the midshipman to go through each intervening scenario (Allely, 1999). This way, the midshipman still experiences many types of scenarios, while getting the realism of problems that are not concluded in a series of sequential decisions.

Leadership style effects may be determined quickly, making the long-term consequences passé (Allely, 1999). In real situations, people make initial determinations of a superior's leadership style that only become reinforced over a long period. So, the analysis of the midshipmen's performance in each scenario can be used to determine leadership capability more efficiently than using many scenarios over longer periods of time (Allely, 1999).

C.   MODELING PERSONALITY

Modeling personality represents an important feature of an IMI leadership program. A leader's personality influences the people with whom he or she interacts. A person's choice of words, voice inflections, and general body language transmits a message to the recipient of the communication that adds meaning to what is being said. The message recipient uses all cues to interpret the message.

A simple example illustrates this point. A petty officer approaches a junior officer, who is obviously deeply engrossed with administrative work, and asks to speak to him or her about a personal problem. In the first scene, the junior officer stops what he or she is doing,

pulls out a chair, shifts his or her body towards the petty officer, and says "What can I do to help?" In the second scene, the junior officer continues to work and says "What can I do to help?" without looking up from his or her work. In the third scene, the junior officer rolls his or her eyes, drops his or her pen, and says "What can I do to help?" in a sarcastic fashion.

The interaction outcome in each of these three scenes can be different. Furthermore, the long-term consequences of the leadership styles portrayed in each scene affects the performance of the junior officer's division as well as the junior officer's success as a leader in the eyes of his or her command. Therefore, it seems important to capture personality to illustrate the effect personalities exert on subordinate's perception of the leader, and how the leader's personality affects outcomes.

Despite its importance, modeling human personality, especially when the environment is included, is difficult (Allely, 1999). The IMI training system must have the capability to evaluate the student's voice and body language; a technological impossibility with today's desk top computer systems. Besides, this capability might not produce the intended benefits because midshipmen can probably select the correct option, regardless of their actual personality type (Allely, 1999). For example, most midshipmen understand the "praise in public, reprimand in private" leadership principle and recognize the appropriate option in an IMI program. The same midshipmen, put into a real situation, with real-time constraints and pressures may act differently. This dichotomy between training and actual situation is an inherent weakness of the training situation. Although the importance of personality characteristics and non-verbal cues is established, the benefits of modeling a

student's personality into an IMI program has not been evaluated. The objective, then, should be to model personality types that contribute positively and negatively to successful leadership. Midshipmen can learn the most effective styles through observational learning or behavioral modeling.

Five techniques for modeling personality are discussed. Two methods are used with the Situational Leadership II program. The third method is an adaptation of Ninth Houses method, but using Agent-Based Adaptive Simulation. The VISTA program offers a fourth method of personality modeling. Finally, sub-plot development is explained as an observational learning technique.

1.   Modeling Personality in Situational Leadership II

The Situational Leadership II program, developed by Ninth House, determines the appropriate learning style for each student. The student is asked to answer several questions at the beginning of the training session, which is used to calculate a Learning Style Indicator™ (LSI). The LSI is used to assign a mentor to each user based on his or her character and temperament type.[12] The mentor serves as a personal tutor throughout the training sequence. Furthermore, the instruction provided by the program is tailored to the student's LSI.

Ninth House also models personality into the options for each scenario by using

---

[12]The character or temperament type is derived from the Keirsey Temperament Theory. According to the Keirsey web site, the Keirsey Temperament Theory is similar to others derived from Carl Jung's theory of "psychological types," such as the Myers-Briggs, the Singer-Loomis, and the Grey-Wheelright. The questionnaire identifies four temperament types: Guardian ["SJ"], Artisan ["SP"], Idealist ["NF"], and Rational ["NT"].

words or phrases in ways that appeal to the student's personality type (Mitchell, 1999). As with other scenario-based software programs, the student's options determine the scenario outcome.

Finally, Ninth House models personality for video characters with which the student must interact. The student observes the character speaking, with all non-verbal cues present. The student uses the information to evaluate the situation and determine a proper response. Rather than being concerned about his or her own non-verbal cues and personality, the student is learning how to interpret and respond to other people, based on observational learning.

The initial interview technique Ninth House uses to determine the LSI can be used to determine personality and incorporated into scenarios. Hiles (1999) believes the interview results can be programmed into an agent along with the training concepts for each personality type. The agent then uses its knowledge of the personality type to develop scenario outcomes.

2. The VISTA Program

The VISTA program (Schroeder, et al., 1986) recognizes the importance of non-verbal cues in interpersonal interactions and models personality into the scenario options. The VISTA program allows the student to view the Second Lieutenant character in the scenario acting out the chosen response from the subordinate's perspective before viewing the subordinate's reaction. The ability to preview the option allows the student to observe non-verbal cues that could change the intent of their selection.

3. Developing Sub-Plots

Another method to teach midshipmen the consequences of personality utilizes observational learning through sub-plots (Allely, 1999). Characters with different personality and leadership styles can be observed periodically interacting with other characters, just as a new Ensign would observe other officers and non-commissioned officers on a ship. Occasionally, a sub-plot becomes a precursor to a scenario with which the midshipman interact. For example, in one sub-plot the Ensign observes the CO violating the "praise in public, reprimand in private" principle by berating one of the department heads on the condition of cleanliness in the department head's compartments. The Ensign does not have a decision or interaction, except to observe the department head's response, and reflect on the scenario. If the sub-plot is designated to be the precursor to a future scenario, the department head may use the incident to cancel liberty for the Ensign's division to clean the compartment. In this case, the Ensign, having observed the events that led up to the scenario, must decide what to do. The student has benefitted from sub-plots in three ways. First, the student observes the effects of violating the "praise in public, reprimand in private principle." Second, the student learns how to interact with an irate superior. Third, the student benefits from the realism of the sub-plot technique.

4. Choosing a Method For Modeling Personality

The student's ability to recognize the correct option regardless of the way the student might react in real life must be acknowledged as a limitation of the current technology. However, modeling personality characteristics represents an important aspect of an IMI

leadership program because of the significant effect personality contributes to interpersonal skills and leadership success. Each of the five methods presented here should be considered when developing an IMI program.

D. MEASURING SUCCESS AND PROVIDING FEEDBACK

1. About Performance Measurements Systems in General

Buck (as cited in Bass, 1990) stated that "After four decades in which social scientists have devoted a marvelous amount of intellectual task of understanding leadership, there is still no definitional consensus [of leadership]" (p. 9). The notion of consensus may be irrelevant if an organization develops a leadership model that contributes to its success, and can develop a training program to sustain the model. Conversely, if the organization does not have a definition of leadership, the organization will not know if it is successful in teaching leadership. The definition of a leadership model also determines the feedback provided to improve each student's leadership development. This section explores the Naval Academy's definition of leadership and current performance measurement system.

In a study on transformational leadership among midshipmen at the Naval Academy, Lau, Atwater, Avolio, and Brass (1993) stated that analyzing leadership effectiveness requires a systematic investigation of individual attributes and developmental experiences that maximize leadership development, potential, and ultimately performance. This type of investigation has four basic requirements: (1) Individual attributes and developmental experiences must be identified and measured; (2) leadership behavior or performance must

be adequately modeled and measured; (3) leadership effectiveness must be defined and assessed; and (4) causal links among attributes and experiences, behavior and effectiveness must be established.

Lau, et. al. (1993) concluded a lack of clarity exists concerning what is meant by leader behavior at the Naval Academy considering the vast collection of research on leadership. They also believed that confusion exists between leader behavior, the concrete acts performed by a leader, and leader effectiveness, the outcomes of the behavior. Lau, et al. (1993) concluded that measurement of leader behavior comprises two facets. First, the leader behavior must be comprehensively described. Second, a multi-method approach must be used to capture the potential range of leadership behaviors exhibited by individuals. The multi-factor concept of leadership measurement that Lau, et al. (1993) developed included leadership traits, leader behavior, relationships leaders have with their followers, the style(s) of influence leaders choose to use, leader impact on individuals and groups, and their position. In other words, a comprehensive performance feedback system needs to include traits, behaviors, situations and interactions.

Lau, et al. (1993) conclusions reinforce Parker's (1981) assertion about competency-based leadership programs that lack behavioral objectives. Without behavioral objectives, no basis exists for establishing criteria for success, developing instruments to assess whether a student needed the training to begin with, or determining student proficiency as a leader afterwards (Parker, 1981). Therefore, an IMI leadership program performance measurement system needs to determine whether the student possesses the skill or characteristic, and

whether or not he or she can use the competency in an appropriate situation (Klemp, as cited in Parker, 1981).

2. The Naval Academy's Leadership Performance Measurement System

The Naval Academy's leadership performance measurement system was described in Chapter II as consisting of fitness reports, formal counseling sessions, and a 360-degree feedback system. Like the Navy's LMET program mentioned earlier, the leadership development program identifies leadership competencies but does not define behavioral objectives (Parker, 1981). How effective is the current performance measurement system in providing midshipmen with feedback? How effective is the current performance measurement system in helping the Naval Academy identify effective leaders and leaders who do not exhibit the desired leadership characteristics?

In a study designed to assess the relationships among transformational leadership[13] and leader success at USNA, Atwater and Yammarino (1989) studied midshipmen leaders and performance evaluations by their subordinates and superiors. They suggested that the midshipman performance evaluation system did not correlate with desirable leadership traits, defined in the study as transformational leadership characteristics, as seen by the midshipmen's subordinates. Conversely, the study concluded that midshipmen performance

---

[13]Burns (1978) defined a transformational leader as "one who engages with others in such a way that leaders and followers raise one another to higher levels of motivation and morality . . . Transforming leadership ultimately becomes moral in that it raises the level of human conduct and ethical aspiration of both leader and led, and thus has a transforming effect on both" (p. 101). The antithesis to a transformational leader is a transactional leader who "takes the initiative in making contact with others for the purpose of an exchange of valued things" (p. 101).

was positively correlated to the Company Officer's impression of transformational leadership. In other words, the midshipmen rated by Company Officers as exhibiting transformational leadership qualities were not the same midshipmen considered by subordinates as transformational leaders. Atwater and Yammarino (1989) offer three possible causes for the disparity. First, the subordinates, who don't have much experience identifying true transformational leadership qualities could be wrong in their assessment. Second, Company Officers observe midshipmen leaders infrequently, or only during certain events, and don't see the range of midshipman performance like their subordinates do. Third, Company Officers may have rated midshipmen on qualities like completing a task in a timely manner, rather than purely transformational traits.

Atwater and Yammarino (1989) concluded that transformational qualities are not forming the basis of selection into the midshipmen leadership structure because performance grades correlated significantly with academic performance and conduct grades rather than transformational characteristics. Therefore, leadership positions within the Brigade chain of command depend on academic and conduct performance rather than measures of transformational leadership. They suggested that the performance evaluation criteria used at USNA do not predict transformational leadership and performance measures exhibit low correlation to leadership behavior.

The study by Atwater and Yammarino (1989) illustrate the problems encountered with performance measurement systems. The Naval Academy's performance measurement and feedback system identifies desired leadership traits, however, it does not necessarily

result in leadership skills being used in the appropriate situations. Furthermore, the people evaluating midshipmen may not always serve in the best positions to gain a comprehensive picture of a midshipmen's leadership skills.

3. Methods of Feedback in an IMI Performance System

Three of the IMI leadership program benefits identified in Chapter I noted that IMI can provide midshipmen with an opportunity to experiment with their leadership style, it can provide midshipmen with an opportunity to observe and reflect on the consequences of their leadership styles, and it can provide the Naval Academy with an opportunity to evaluate each midshipmen's leadership skills. Alternatively, an IMI program can be used to teach leadership skills as was done with the VISTA program, Situational Leadership II, the Leadership Assessment Program (LAP), and the U.S. Army ROTC Leadership Development: A Performance-Based Program. The feedback method for an IMI program that teaches leadership may be different than the feedback method for an IMI program that is used for reflection and evaluation.

The VISTA program (Schroeder et al., 1986) solved this problem by designing two modes into the program, an experiential mode, and a pedagogical mode. The experiential instruction mode included interactive scenarios and relied on scenario outcome to provide the immediate feedback. However, they found that a pedagogical mode was also needed because of the difficulty encountered in writing scripts that fully portrayed and explained some of the more subtle principles and teaching points.

In the experiential mode, the program presented the student with scenarios. The

97

student selected from among a series of options at each interaction point. The characters in the scenarios reacted depending on the option selected and formed the feedback to the student's decisions. The scenarios provided trial-and-error learning, allowed the student to experience the consequences of his or her leadership style, and provided a method for measuring leadership skills.

The pedagogical mode proved more instructive by including background information and an initial presentation of scenario. The program developers required the student to construct a written response to each scenario interaction before choosing one of the computer-provided options that most closely represented his or her written response. The student previewed the computer alternative from the subordinate's perspective to ensure the non-verbal cues matched the intent of the response he or she wanted before seeing the videodisc character's reaction. The preview feature prevented discrepancies between words and non-verbal cues. The ability to preview responses also provided a form of observational or behavioral modeling.

In the pedagogical mode the student received feedback by observing the scenario outcomes as well as specific feedback based on theoretical leadership concepts (e.g., counseling, communications, learning, and so forth) to teach the more subtle leadership concepts. If the student chose the best response alternative, the student received feedback and then was given the opportunity to learn why the other choices were less desirable. If the student chose a less optimal alternative, he or she was returned to the option list, which did not include the recently selected less optimal choice, and asked to choose another option.

Giving the student the opportunity to return to the problem is consistent with the Experiential Learning Model in that the student experiments with his or her behavior, reflects on the consequences, then formulates new ideas, and applies the new concepts.

Schroeder et al. (1986) described four features of the pedagogical mode that they believed contributed to the learning environment. These features included the ability to: use a constructed response in addition to the computer-provided alternatives, preview the student's selected alternative, study the less optimal alternatives, view feedback immediately following an interaction point.

The pedagogical mode used in the VISTA program (Schroeder et al., 1986) is similar to the feedback process used in the LAP (Burke & Davis, 1986). The LAP used learning modules that followed a general format. First, an Army narrator described the dimension to be taught, and provided a brief introduction to the dimension. Next, the student viewed a video vignette of a realistic situation in the Army. The scenario followed a general format in which a Second Lieutenant was called upon to resolve a leadership problem involving superiors, peers, or subordinates by displaying behavior on the topic dimension. The Second Lieutenant in the vignette either handled the situation well, or handled the situation poorly depending on the module. If the situation was handled poorly, a follow-up vignette was provided to show the situation resolved successfully. Then, a set of key behaviors for effective performance on the dimension was presented with an explanation of each. The student then took notes on another video vignette to provide a higher degree of interactivity and to reinforce principles being taught. The program tested the student for recognition of

steps as they occurred in the scenario. In a final video vignette, the program presented the student with a situation and asked to a make decision using options in a workbook. The narrator provided immediate feedback on the best course of action, as well as strengths and weaknesses of the next best response. The program continued to provide the student with interaction points until it reached a conclusion.

The Situational Leadership II program by Ninth House also uses a combination of the pedagogical method for teaching leadership used by the VISTA program, and the behavioral modeling method used by the LAP. According to Ninth House (1999), there are several steps used to teach leadership. First, they build student awareness regarding what students need to learn in order to improve a specific skill. Then, they describe the approach used to obtain that skill. Second, the student acquires concepts by using the Situational Leadership II learning models. The students practice the desired behavior by observing and then practicing (i.e., behavioral modeling) the skills they have learned in exercises to help them attain the desired behavior change and apply their new learning. Finally, students apply the behaviors in interactive role-playing simulations.

Project Challenge (Thinking Tools, 1999) uses several forms of feedback in an experiential training mode. The first feedback type, like the VISTA program and Situational Leadership II, determines whether or not the user successfully delivers the project based on performance objectives. The performance objectives include the project budget and schedule, team satisfaction and customer satisfaction (Thinking Tools, 1999). The user can also review performance measures during the scenario to assess ongoing performance. At the

end of the project, the user can examine the post-project review file to learn more about the effects of his or her actions throughout the project (Thinking Tools, 1999).

The benefits of an experiential and pedagogical mode are deemed important to an IMI leadership program, if one were implemented at the Naval Academy. The experiential mode provides the midshipmen with immediate feedback and an opportunity to experience the consequences of his or her leadership style and an opportunity for the Naval Academy to evaluate the midshipmen not only on leadership traits, but also on the ability to utilize those traits and leadership skills in realistic situations. The experiential mode could present the Naval Academy with its first controlled evaluation of midshipmen leadership from a common perspective. The pedagogical mode could equip the midshipmen with the more subtle concepts of leadership that cannot be taught by different methods.

4. Performance Measurement and Feedback Parameters

Performance measurement parameters and feedback must also be considered. The performance measure parameters contribute to rating each option on desirability and outcome. The parameters can be used to select future scenarios. The factors also determine the degree of leadership effectiveness for each midshipman.

The previous section on scenario development concluded that the vast array of leadership theories and complexities of realistic scenarios requires a group of subject matter experts. However, the subject matter experts need guidelines to develop scenarios and consequences that are consistent with Naval Academy leadership development objectives. Therefore, parameters must be identified to ensure that each option and scenario is rated

against the leadership traits identified in the midshipmen fitness report, 360-degree feedback system, and the Navy Officer's fitness report which are listed in Appendices B and C. Furthermore, the methodology used to select follow-on scenarios must have a set of measures and criteria to evaluate the midshipmen's decisions.

The current midshipmen and officer fitness report already identifies fifteen performance characteristics on a four-point (six-point for the officer fitness report) Likert scale to evaluate a midshipmen's leadership traits. One possible method for determining leadership effectiveness is to assign relative values to each of the fifteen performance characteristics for each possible scenario outcome. The performance measure scores can be used to evaluate the midshipmen's leadership competencies and ability to use those competencies effectively in realistic situations. The performance measurement score can also be used to determine the type of scenarios that are presented to the midshipmen. For example, consider a scenario involving assigning tasks to an inexperienced subordinate. An option utilizing close supervision and guidance results in high marks for delegation, teamwork, developing subordinates, and leadership development because the subordinate's level of experience is taken into consideration. The same option for another scenario involving an experienced first-class petty officer may result in low marks for the same traits.

The performance characteristics listed on the midshipmen fitness report must be supplemented with behavioral measures that are identified in the assessment phase of scenario development. There are drawbacks to this approach, however. Assigning values to each performance characteristic for each scenario option may prove difficult because of

the subjectivity in assigning the values. Assigning values may introduce the biases of program developers regarding the acceptability of various leadership styles. Midshipmen will eventually be able to determine the "correct" answer to scenarios rather than making decisions based on their leadership styles.

E. SUMMARY

1. Scenario Development

This chapter answered the second primary question: How do we develop an IMI product that is consistent with the Naval Academy's leadership philosophy and beneficial to the midshipmen? The question was answered by addressing several secondary questions.

First, an IMI leadership program must include learning objectives that take into account not only the theories of leadership taught at the Naval Academy, but also the situational components of leadership. Such a leadership program ensures that the student possesses the desired skill and knowledge. The program also ensures each midshipman knows how to employ the skills and knowledge by linking learning objectives and leadership theory to behavioral objectives. Once the behavioral objectives are defined, measures of effectiveness can be created and feedback can be designed to show the midshipmen and the Naval Academy whether or not the midshipmen possess the appropriate trait or skill, and whether or not they are utilizing it properly. Second, the VISTA program method of using subject matter experts to develop realistic scenarios that synthesize leadership and counseling theories with the leadership attributes being developed should be utilized. Third, an IMI

leadership program must link the decisions and outcomes of one scenario set to the selection of future scenarios. This feature must ensure the student continues to experience a full range of scenarios, and provides feedback quickly enough that the student can relate poor decisions to the outcomes.

2. Modeling Personality

Modeling is an important aspect of an IMI leadership program because of the significance of personality in interpersonal skills. An IMI program should consider the five following methods: Determining the student's character and temperament type to provide tailored feedback, designing options to appeal to certain leadership styles and personalities by word and phrase selection, using a personality profile test to program agent-based characters that model the student's personality, allowing the student to preview the choice before viewing the subordinate's response to ensure the option portrays the meaning intended by the student, and using sub-plots involving other characters.

3. Performance Measurement and Feedback

Effective performance measurement and feedback ensures that the leader's behavior is comprehensively described, and uses a multi-method approach to capture the potential range of leadership behaviors exhibited by the leader. The multi-method approach to a performance feedback system needs to include leadership traits, behaviors, situations, and interactions. Traits are already identified in the midshipmen and officer fitness report system. Furthermore, fleet input is required to determine if additional traits and behaviors are needed that are not being taught.

Two feedback types should be provided to midshipmen. An experiential mode provides the midshipmen with immediate feedback and an opportunity to experience the consequences of his or her leadership style. The experiential mode also provides the Naval Academy with an opportunity to evaluate the midshipmen not only on leadership traits, but also on the ability to utilize those traits and leadership skills in realistic situations. This mode would present the Naval Academy with its first controlled evaluation of midshipmen leadership from a common perspective. The pedagogical mode equips the midshipmen with the more subtle concepts of leadership that cannot be taught by different methods.

Finally, leadership effectiveness and feedback can be provided by assigning relative values to each of the fifteen midshipmen and officer fitness report performance characteristics for each possible scenario outcome. The scores designed to reflect the extent to which the option being rated demonstrates the midshipman's ability to apply that characteristic in a realistic situation. The performance measure scores can be used to evaluate the midshipmen's leadership competencies and ability to use those competencies effectively in realistic situations, and to determine the type of scenarios that are presented to the midshipmen.

IV. SCENARIOS

Leadership is an art which requires continuous study and practice over an extended period . . . (Air Force Leadership Training Guide, 1953, p. 1).

A. INTRODUCTION

This chapter first describes the basic structure upon which scenarios are developed. The user's shipboard environment is defined by describing the chain-of-command and scenario characters. Next, the ship's basic operating schedule is provided to describe the IMI scenario sequence. Finally, an example of a scenario in a Naval Academy IMI leadership program is presented to illustrate points developed in previous chapters.

B. SHIPBOARD ENVIRONMENT

Midshipmen who graduate from the Naval Academy choose one of many naval service career paths available to them including the surface warfare community, the submarine community, the aviation community, the United States Marine Corps, and the Special Warfare community. Each warfare community provides its own organizational and command structure, culture, and unique situations. Therefore, an argument can be made that an IMI program must accommodate each warfare community's needs by using scenarios that model those demands. This argument is certainly valid when one considers the factors, discussed in Chapter II, that influence learning. The issue should be addressed in future studies and future versions of any IMI program that is developed. For now, this thesis

assumes that many basic leadership situations encountered by junior officers leading small units within one warfare community are transferrable to other warfare communities. Scenarios can be developed such that they remain pertinent to each community, regardless of the community being targeted. Hence, one warfare community should be modeled in order to simplify the IMI program development process, especially for the initial product. All Midshipmen are introduced to the surface warfare organization and command structure during their summer training, leadership courses, and Naval Science classes. Therefore, the initial IMI program should utilize a generic naval surface combatant environment.

The midshipman assumes a division officer role that does not require special technical knowledge beyond what is taught at the Naval Academy. As with the argument for modeling each warfare community, being able to use a video character that models the student's gender and ethnic background improves learning. However, discussion on this matter reaches beyond the scope of this thesis and remains an area for future research. The sample scenario presented uses a character called Ensign Smith, who is not associated with a specific gender or ethnic background.

The chain of command, illustrated in Figure 8, provides an initial cast of people with whom the student must interact. A typical shipboard chain of command includes a Commanding Officer (CO), Executive Officer (XO), usually holding the rank of Commander (O-5) and Lieutenant Commander (O-4), respectively. The ship is divided into five functional departments: Navigation, Operations, Weapons, Engineering, and Supply. Each department is led by a department head, holding the rank of Lieutenant Commander (O-4).

Each department is divided into two or more divisions. The midshipman leads one division as a division officer, and holds the rank of Ensign. Other division officers are either Ensigns, Lieutenants (Junior Grade), or Lieutenants, depending on the length of time assigned to the ship. The division officer is assisted by a non-commissioned officer, either a chief (E-7) or senior chief (E-8) petty officer, who is also considered the technical expert for that division. The division consists of several petty officers (e.g., First class, second class, and third class) and seamen. Generally, most scenario interactions occur between the division officer and chief, or the division officer and one of the members of the division. However, scenarios will also include those who interact with the CO, XO, department head, or another division officer.

The scenarios involving the CO, XO, or department head usually require the midshipman to explain actions by members of the division, answer for the division's performance, support the division for special privileges, or advocate for a division member's special request. Scenarios requiring students to interact with senior officers in the chain of command on behalf of their division members help midshipmen realize the complexities of supporting and caring for subordinates while balancing the needs of the command in accomplishing the mission. As a leader, a midshipman who leans too far on either side of the spectrum between mission and individual needs will not function as effectively as one who bases his or her decision on the merits of the scenario.
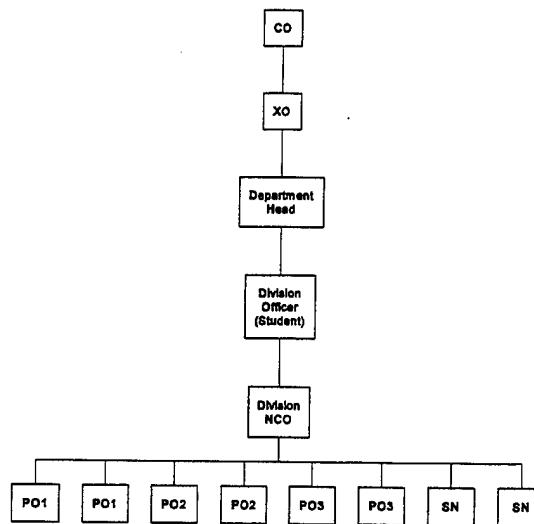
Figure 8: Chain of Command

The IMI program should be designed to allow midshipmen the option of informing the chain of command about any scenario with which they are dealing, without computer prompting. This realistic feature teaches midshipmen how to identify situations that should be brought to the attention of the chain of command. Once again, a midshipman who strays too far on either side of the spectrum between always informing the chain of command and never informing the chain of command will not be considered an effective leader compared to those who make the correct decision based on the scope of the scenario.

C.   THE SHIP'S OPERATING SCHEDULE

Midshipmen must be exposed to the various types of problems that emerge during

different periods of a ship's operating schedule. For example, the scenario types encountered prior to an extended deployment can be different from the scenario types encountered when the ship is on deployment, or during the period after a ship returns from a deployment. Furthermore, the same situation may present different outcomes depending on the ship's operating schedule. The midshipman must learn that different factors should be taken into consideration if a subordinate is late for work during a regular day in port, or if a subordinate is late for work the morning the ship is due to leave port.

The IMI program, designed to run over a period of one semester, follows the various phases of a ship's operating schedule over a two-year period. However, the specific scenarios chosen are based on ensuring midshipmen are exposed to a wide range of situations that are partly based on the outcomes of previous scenarios. For example, during an aggressive pre-deployment training cycle, midshipmen encounter unauthorized absences, special requests, marital problems, or balancing time-off with mission requirements.

The IMI program should start at a routine point in the ship's operating cycle to allow the midshipman time to become comfortable with the program. Therefore, the scenarios should start in the middle of a ship's inter-deployment training cycle, meaning that the ship spends several days or weeks in port followed by several days or weeks at sea. Eventually, scenarios start dealing with issues that arise as the ship goes through a refit, or maintenance period. Next, the ship undergoes a pre-deployment training cycle involving intervening periods at sea and in port. These scenarios should reflect an increased operations tempo, including longer work days and more days at sea as the deployment date approaches.

Scenarios then reflect situations encountered when a ship is on deployment, followed by a post-deployment period.

D.   SAMPLE SCENARIO

The following case illustrates a simple example of a scenario. A detailed, scripted scenario extends beyond the scope of this thesis. The objective is to present the reader with an example that illustrates:

- The scope of a realistic scenario a junior office may encounter.

- That scenario is the result of a past scenario.

- How the student's decisions are evaluated based on midshipman performance measures.

- How feedback is provided to the student.

- How personality is modeled.

- How leadership traits need to be applied to specific situations in order for the midshipman to be successful.

- The effect of the student's decision on future scenarios.

An analysis consistent with the ISD/SAT process is not complete, so the reader must understand that the scenario, options, and performance measures are hypothetical and do not reflect the Naval Academy's leadership or counseling theories. Furthermore, the scenario presented here does not include the detailed script and actions of each person required for producing the video vignette. The scenario is provided only to illustrate the points listed

above.

1. Background

The student assumes the role of Ensign Smith who is assigned to a surface combatant. Ensign Smith reported to the ship one day before it departed for a training period at sea, eight weeks ago.

Ensign Smith's division Leading Chief Petty Officer, Chief Jones, has been in the Navy for fifteen years and assigned to this ship for three years. Chief Jones is a capable Chief and respected throughout the ship because of his experience. To illustrate how decisions affect subsequent scenarios, assume that a previous scenario involved Ensign Smith introducing himself or herself to Chief Jones eight weeks ago. Assume that during the previous scenario Chief Jones stressed his positional authority, his belief that he was responsible for the division's day-to-day operations, and his belief that it was his responsibility to help train Ensign Smith. Chief Jones is well liked by the men and women in the division, and earned a reputation for sticking up for the members of his division.

The ship returned to port this morning after spending eight weeks at sea, and is scheduled to leave in a few days after several repairs are made to equipment belonging to another division within Ensign Smith's department. The ship will be at sea for an additional three weeks once the repairs are complete.

Ensign Smith noticed that the division's morale dropped during the underway period. Ensign Smith believes the cause is an aggressive training and maintenance schedule with little opportunity to relax.

Ensign Smith recently attended a meeting in which the department head discussed the large work load that must be completed before departing for sea again. First, equipment must be repaired. Second, the ship's cleanliness is not up to his or her standards. The department head told the officers that s/he expects each division to utilize full working days to conduct repairs or cleaning. S/he also said that Ensign Smith's division would be responsible for providing assistance to the divisions conducting repairs by helping to clean their compartments.[14] This meeting should be presented as a video vignette, rather than as text, showing the department head talking to several officers to increase the realism.

2.   The Event

The initial video segment shows Ensign Smith entering the divisional work space. He or she notices the division members stowing equipment in preparation for leaving for the day. They seem to be in good spirits. Chief Jones is supervising the work.

Ensign Smith must choose one of the following options:

(1) Motioning for Chief Jones to step into an adjacent office, Ensign Smith says "Chief Jones, can I have a word with you, please?"

(2) Ensign Smith approaches the chief, shaking his or her head in mock disbelief and says, "Chief Jones, you're not going to like this, but the department head told us to plan on working full days and helping X division clean their space. S/he doesn't think

---

[14]This point can be used as an opportunity for interaction between the department head and Ensign Smith. For example, Ensign Smith can argue against cleaning the other division's space, develop an alternate plan, or accept the responsibility as something that must be done for the good of the ship. For the purpose of simplifying this scenario, assume that Ensign Smith chooses to accept the responsibility.

cleanliness is up to standards and X division is too busy fixing their equipment."

(3) Ensign Smith faces the chief and the division and sternly says, "The ship is not up to cleanliness standards. We are going to work full days while we're in port to get our space up to standards, and also help X division to clean their space since they're busy fixing their equipment."

Assume that the midshipman chooses option (1). The next scene takes place inside an office. The midshipman is presented with several options for interacting with the Chief. In this case, two of the options are ones that could have been selected previously.

(4) Ensign Smith shakes his or her head in mock disbelief and says, "Chief Jones, you're not going to like this, but the department head told us to plan on working full days and helping X division clean their space. S/he doesn't think cleanliness is up to standards, and X division is too busy fixing their equipment."

(5) Ensign Smith says in a stern voice, "Chief Jones, the ship is not up to cleanliness standards. The division is going to work full days cleaning our space and also help X division clean their space."

(6) Ensign Smith says "Chief, I know the division has been working hard and deserves some time off, but the department head doesn't feel the ship's cleanliness is up to standards. I'd like you to develop a plan to get our space into shape. I'd also like to help our shipmates by giving them a hand cleaning their space since they are so busy fixing their equipment. It means our people will have to work harder, but it's better for the ship."

The scenario would continue until the situation is resolved. By choosing option (1) and then (6), the midshipman consults with the Chief in private to devise a plan balancing the task with the personal needs of the division. If the midshipman had chosen options (2) or (3), he or she would have encountered a resistant Chief and division. The Ensign would have observed men and women complaining under their breath, and displaying general discontent. The Chief, who was not consulted prior to the announcement, would protest by pointing out how hard the division had worked while at sea, and how much in need they are of some time off.

3.   Sub-Plot Scenario

In the next scenario the midshipman observes a sub-plot scenario, as described in Chapter III. In this sub-plot scenario the midshipman observes the department head rewarding a member in another division for his or her efforts to repair a piece of equipment. In this scenario the midshipman is not afforded an opportunity to make decisions or interact. The midshipman should be learning through observation about the concept of rewarding in public, and celebrating small achievements rather than waiting for "home-runs." The scenario triggers a future scenario in which a petty officer in his or her division successfully accomplishes a task providing the midshipman an opportunity to practice what he or she learned in this scenario.

4.   Discussion

In the pedagogical mode the midshipman receives feedback at each interaction point. If the midshipman selects the optimal solution, he or she receives feedback explaining why

the option is optimal and others less optimal. If the midshipman selects any of the less optimal solutions, he or she receives feedback explaining why the option is not the best, and is then given the opportunity to repeat the same scene. The feedback includes the midshipman's decision to inform the chain of command about the situation.

In the experiential mode, the midshipman steps through each interaction until the scenario is concluded. The response to each interaction and the final scenario outcome provides the midshipman with immediate feedback, the Naval Academy with an opportunity to evaluate the midshipman, and data for future scenarios. Upon completion of the scenario, the midshipman is also given the opportunity to review each interaction point and receive feedback on his or her decision. Again, the feedback includes the midshipman's decision to inform the chain of command about the situation.

The scenario may incorporate future consequences, depending on the midshipman's decisions during the experiential mode. For example, if the midshipman had chosen option (2) or (3), a future scenario could include a problem involving lower morale, low productivity, and low quality work as the division goes about their task to clean the ship. The midshipman must decide how to turn the situation around. If the midshipman had resolved the sample scenario appropriately by developing a plan with the chief, the task would have been completed and morale would have improved resulting in scenarios consistent with those results.

The Ensign's personality was modeled in the way he or she presented the task, and by the Chief and division members in how they responded to the Ensign. In option (2) or (4),

it seems obvious that the Ensign does not support the command and is trying to avoid responsibility for the task by blaming it on the department head. In option (3) or (5), the Ensign is trying to impose an authoritarian style.

The options at each interaction point are evaluated for measures of effectiveness, as discussed in Chapter III, by assigning values to leadership competencies based on accomplishing stated learning and behavioral objectives. In this case, the scenario is designed to teach and test the midshipman's ability to apply several leadership competencies. These competencies include military bearing and character, maturity, delegation, mission accomplishment, decision making skills, team work, and so on. Table 1 illustrates how each option is evaluated based on sample performance characteristics from the midshipmen fitness report. This example uses a ten-point scale rather than the four-point Likert scale used in the midshipmen fitness report in order to show greater variance in option desirability, with NOB meaning Not Observed.

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Military Bearing	10	3	6	3	6	10
Delegation	NOB	3	1	3	1	8
Supervising/Developing Subordinates	NOB	4	7	4	7	10
Maturity	8	3	7	3	7	10
Teamwork	8	3	4	3	4	10
Mission Accomplishment	NOB	5	7	5	7	10
Verbal and Written Communication	8	4	7	4	7	10

Table 1: Performance Measures for Scenario Options

If the midshipman had chosen option (1) followed by option (6) he or she would have attained a much higher score in applying traits like delegation, teamwork, and mission accomplishment, than if the midshipman had chosen option (1) followed by option (4). These scores are provided to the midshipman as feedback and used by the Naval Academy to evaluate the midshipman's leadership skills.

As mentioned in Chapter III, midshipmen also observe sub-plot scenarios between other members of the crew that do not require immediate interaction. These sub-plot scenarios, for example between the CO and a department head, can be used by the midshipman as a mechanism for observational learning on issues that he or she will have to be able to handle at a later time. These sub-plots can also be tied into the midshipman's scenarios as precursors to future scenarios.

E. SUMMARY

This chapter developed the shipboard environment scenario by describing the chain of command and ship's operating schedule, and then presented a short sample scenario. The sample scenario illustrated several points developed in previous chapters. First, the scenario is realistic and resulted in likely consequences. Second, the scenario was linked to a previous scenario and affects future scenarios, without limiting the range of scenarios presented in the future. Third, personality can be modeled by using appropriate words and character actions for each option. Fourth, several forms of feedback are provided. In the pedagogical mode, the midshipman received feedback at each interaction point. In the experiential mode the midshipman received feedback by viewing the response to each decision, by learning the final outcome of the scenario, and receiving computer feedback at the end of the scenario. Leadership competencies are assessed for each interaction point to provide the midshipman and the Naval Academy with measures of leadership effectiveness. Fifth, learning can be attributed to several theories including observational learning and behavioral modeling.

Several other points were illustrated. Realistic scenarios are apportioned to ensure the midshipman is exposed to situations involving subordinates and superiors. The midshipman must not only be exposed to many different types of scenarios, but also the same types of problems but under different conditions. Scenarios are affected by many factors including the ship's operating schedule, past scenarios, and other outside events (i.e., sub-plots). Finally, midshipmen must learn when to inform the chain of command about their problems.

V. CONCLUSIONS AND RECOMMENDATIONS

A. RESEARCH QUESTIONS REVISITED

This thesis addressed issues in the analysis and design phases of the ISD/SAT process to develop an IMI leadership program for the Naval Academy. The end product is a study that uses current research and existing innovative leadership programs to answer questions that need to be resolved to develop a program consistent with the Naval Academy's leadership training philosophy.

Two primary questions were raised, the first of which is: Can an IMI program be developed to teach leadership at the Naval Academy? It can be seen through a detailed review of leadership training methodologies and existing programs that an IMI program can be developed that is consistent with the Naval Academy's leadership development program. The IMI leadership program must incorporate learning theories utilized by midshipmen including observational learning and the Experiential Learning Model. Of the leadership training methods reviewed, the most promising includes role playing, simulation, and behavior modeling implemented through interactive multimedia instruction.

The second question addressed developing an IMI product consistent with the Naval Academy's leadership philosophy and beneficial to the midshipmen. An IMI leadership program must include learning objectives that take into account not only the theories of leadership taught at the Naval Academy, but also the situational components of leadership. Such a leadership program ensures that the student not only possesses the desired skill and

knowledge, but also that each midshipman knows how to employ the skills and knowledge by linking learning objectives and leadership theory to behavioral objectives. The best example is illustrated in the VISTA program, which uses subject matter experts to develop realistic scenarios. The subject matter experts were able to synthesize leadership and counseling theories with desired leadership attributes, and create scenarios that taught students how to apply those in realistic situations.

Integrating the consequences of previous scenarios is a critical component of an IMI program because it adds realism. Furthermore, midshipmen must understand how their decisions and leadership styles affect their ability to lead over a long period of time, rather than in isolated scenarios that continually start with a blank slate, or tabula rasa. A sophisticated IMI leadership program relates the scenario results to select future scenarios dealing with that particular subordinate, the division, or the midshipmen's superiors depending on the midshipmen's decision. Additionally, a realistic IMI program should be designed such that the scenario is not completely resolved each time. As in most real-life situations, the situation should be interspersed with other scenarios and may re-appear at a later date, or in a related scenario. The capability to illustrate the cause and effect relationship of a midshipman's decision on leadership situation outcomes facilitates the reflective phase of the Experiential Learning Model.

The ability to relate future scenarios to consequences of past decisions must be balanced against the need to expose midshipmen to as many leadership situations as possible. The midshipmen must not be limited to experiencing one type of leadership style. The

scenarios must also utilize the emotional impact of learning about consequences of past decisions by linking the final outcome to the specific decisions that caused them.

Modeling personality is important for interpersonal skills training because a person communicating information can convey different meanings of intent by using different personality factors. An IMI program should consider the five following methods: determining the student's character and temperament type to provide tailored feedback, designing options to appeal to certain leadership styles and personalities by word and phrase selection, using a personality profile test to program agent-based characters that model the student's personality, allowing the student to preview the choice before viewing the subordinate's response to ensure the option portrays the meaning intended by the student, and using sub-plots involving other characters.

Effective performance measurement and feedback is necessary to ensure that the leader's behavior is comprehensively described. A multi-method approach should be used to capture the potential range of leadership behaviors exhibited by the leader. The multi-method approach needs to include leadership traits, behaviors, situations, and interactions. Leadership traits are identified in the midshipmen and officer fitness report system. Fleet input is also needed to determine if additional traits and behaviors are needed that are not being taught.

Two types of feedback should be provided to midshipmen. An experiential mode provides the midshipmen with immediate feedback and an opportunity to experience the consequences of his or her leadership style. The experiential mode also provides the Naval

Academy with an opportunity to evaluate the midshipmen not only on leadership traits, but also on the ability to utilize those traits and leadership skills in realistic situations. This mode presents the Naval Academy with its first controlled evaluation of midshipmen leadership from a common perspective. The pedagogical mode equips the midshipmen with the more subtle concepts of leadership that cannot be taught by different methods.

Leadership effectiveness and feedback can be provided by assigning relative values to each of the fifteen midshipmen and officer fitness report performance characteristics for each possible scenario outcome. The scores reflect the extent to which the option being rated demonstrates the midshipman's ability to apply that characteristic in a realistic situation. The performance measure scores should be used to evaluate the degree to which midshipmen possess leadership competencies, the ability to use those competencies effectively in realistic situations, and to determine the type of scenarios that are presented to the midshipmen.

B.   AREAS FOR FURTHER RESEARCH

During this thesis work, several areas for further research arose that contribute to the ISD/SAT process for developing an IMI leadership program. These areas include:

- A detailed analysis of the leadership and counseling theories taught at the Naval Academy must be conducted to provide subject matter experts with a foundation upon which to start developing scenarios.

- Small unit leadership situations in each warfare community should be investigated to determine the value of modeling each warfare community in the IMI program rather than using just the surface warfare community.

- A decision must be made regarding modeling ethnic and gender differences

among the students using the IMI program. How will the ethnicity and gender of the Ensign be determined? How important is it that the ethnicity and gender of the IMI character match that of the midshipman using the program?

- To what degree should future scenarios depend on past decisions? This thesis identified several advantages to using a midshipman's decisions to select future scenarios, and proposed several recommendations to implement such a feature. However, training disadvantages were also presented leading one to conclude that the effect of past decisions should have only a limited effect on future scenarios. Midshipmen learn by encountering as many scenarios as possible, rather than being exposed to scenarios solely dependent on their leadership style.

- A methodology to maximize the benefits of reflection as a learning process must be developed and incorporated into the IMI program. The ability to reflect on experiences was identified in Chapter II as a critical component of leadership development. Given its importance, the IMI program must include mechanisms to ensure midshipmen take the time necessary to reflect on the situations they encounter, and develop conclusions consistent with the learning objectives.

- Critical interpersonal and leadership situations that newly commissioned Ensigns and Second Lieutenants are most likely to encounter in the fleet must be identified. Of these situations, the ones that are most likely be different for them to resolve should be identified and given emphasis during the IMI program development.

- The hardware and software requirements for developing the IMI leadership program must be identified.

- The midshipmen performance measurement system must be studied to determine if it provides adequate feedback to midshipmen and the Naval Academy when desired leadership traits are used in leadership situations. This study should include feedback from operational units in the fleet to determine if the current performance measurement system is contributing to leader performance desired by the fleet.

APPENDIX A. DESCRIPTION OF MIDSHIPMEN BILLETS

The midshipmen chain of command is comprised of many billets. These are described in COMDTMIDNINST 1601.12 (1996) and reproduced here. Note that approximately 519 of the 1,068 available positions (or 50 percent) result in exercising leadership skills.

A.   THE BRIGADE STAFF
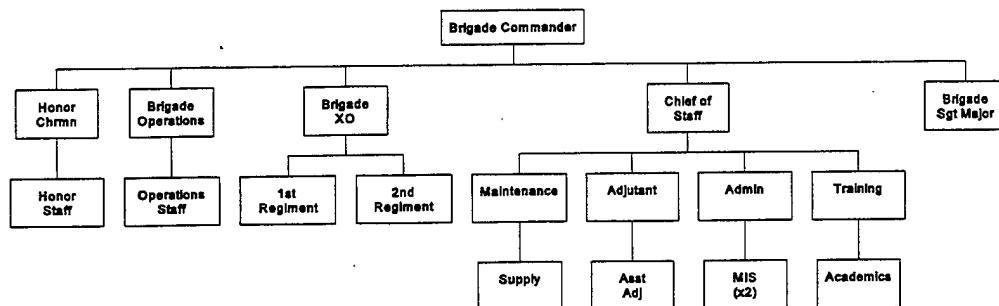
Figure A.1: The Brigade Staff

Brigade Commander. The senior midshipman in the Brigade organization who commands the Brigade.

Brigade Executive Officer. Second in command of the Brigade. Supports the Brigade Commander in an advisory manner in issues concerning Brigade policy.

Brigade Operations Officer. Responsible for the organization, planning, and execution of all operations involving the Brigade of Midshipmen.

Brigade Assistant Operations (Athletics). Responsible to the Operations Officer for all matters relating to Brigade Athletics.

Brigade Assistant Operations (Drill). Responsible to the Brigade Operations Officer for all matters relating to military drill.

Brigade Parade Judge. Responsible to the Brigade Drill Officer for the proper grading of parades.

Brigade Drill Sergeant. The Brigade Drill Sergeant is a Second-Class midshipman who is the primary assistant to the Brigade Drill Officer. The Brigade Drill Sergeant will normally assume the billet of the Brigade Drill Officer during First-Class year.

Brigade Parade Sergeant. The Brigade Parade Sergeant is a Second-Class

midshipman who is the primary assistant to the Brigade Parade Judge. The Brigade Parade Sergeant will normally assume the billet of the Brigade Parade Judge during First-Class year.

Drum & Bugle Corps Commander. The Corps Commander is responsible for the Drum & Bugle Corps.

D&B Executive Officer. Assists the Corps Commander in any way possible and takes charge of the Corps in the case of the Corps Commander's absence.

D&B Operations Officer. Responsible for the operations of the Corps.

Chief of Staff. Responsible to the Brigade Commander for the efficient operation of the entire Brigade Staff Plans. The Chief of Staff conducts Brigade staff meetings and supports the goals and policies of the Brigade Commander.

Brigade Maintenance Officer. Responsible for the material condition and cleanliness of all public and midshipmen spaces in Bancroft Hall.

Brigade Supply Officer. Responsible for the flow of communications

between the Brigade of Midshipmen and Head, Midshipmen Supply Department.

Brigade Adjutant. Responsible to the Brigade Commander for the Midshipmen Watch Organization.

Brigade Administrative Officer. Responsible for performing the administrative functions of the Brigade and supervising the administration of the Main Office.

Midshipmen Information Systems Liaison Officer. Maintains computer software and designs computer programs in support of the Brigade of Midshipmen.

Brigade Training Officer. Responsible for developing and disseminating the training plan for the Brigade of Midshipmen. Works closely with the Department of Professional Development to design and implement training to enhance the professional awareness of all four classes.

Brigade Academic Officer. Responsible to the Brigade Training Officer for making academic assistance information available to midshipmen while maintaining a tracking and monitoring system for those midshipmen

experiencing academic difficulties.

Brigade Sergeant Major. The Brigade Sergeant Major is the senior Second-Class midshipman in the Brigade. The Brigade Sergeant Major supervises the execution of the policies and standards pertaining to the performance, training, appearance, and conduct of underclass midshipmen.

Honor Committee Chairman. Responsible for the administration and operation of the Honor Concept within the Brigade of Midshipmen.

Honor Committee Vice Chairman. Responsible for carrying out the duties assigned by the Chairman.

[Honor Committee] Deputy Vice Chairman for Investigations. Responsible for assigning and tracking honor investigations.

[Honor Committee] Deputy Vice Chairman for Education. Develops a continuing program for educating the Brigade, officers, and faculty in matters pertaining to honor and integrity.

[Honor Committee] Secretary. Acts as recorder at Brigade Honor Board hearings and

131

is responsible for making sure hearing records are always complete, up-to-date, and properly safeguarded.

[Honor Committee] Coordinator. Makes sure communications are maintained with all Company and Battalion Honor Representatives and with the Brigade.

6. [Honor Committee] Academic Liaison. Serves as emissary to the faculty and staff.

B. THE REGIMENTAL STAFF
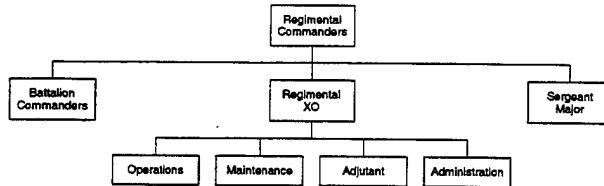
Figure A.2: The Regimental Staff

Regimental Commander. The Regimental Commander is responsible to the Brigade Commander for executing the policies of the Commandant of Midshipmen in maintaining

the Regiment in the highest possible state of efficiency.

Regimental Executive Officer. The Regimental Executive Officer is the direct representative of the Regimental Commander. The Regimental Executive Officer is primarily responsible for the organization, performance of duty, and good order and discipline of the entire Regiment.

Regimental Maintenance Officer. The Regimental Maintenance Officer is responsible for the material condition of all spaces and equipment in the Regiment and shall serve as the Regimental interface to the USNA Supply Department.

Regimental Operations Officer. The Regimental Operations Officer is responsible to the Regimental Executive Officer for scheduling and execution of Regimental functions, missions, and movements.

Regimental Administrative Officer. The Regimental Administrative Officer is the administrative assistant to the Regimental Executive Officer and is responsible for all administrative documents within the Regiment.

Regimental Adjutant. The Regimental Adjutant is responsible for the proper execution of watch and duty functions within the Regiment.

## C.   THE BATTALION STAFF
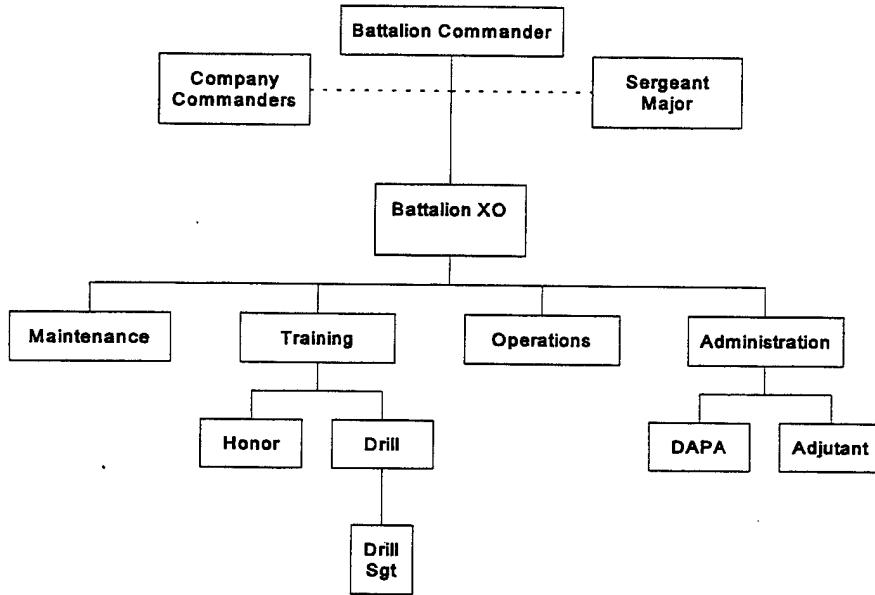
Figure A.3: The Battalion Staff

Battalion Commander. The Battalion Commander is charged with the responsibility for the safety, well-being, and efficiency of the Battalion.

Battalion Executive Officer. The Battalion Executive Officer is the direct representative of the Battalion Commander. The Battalion Executive Officer is primarily responsible for the organization, performance of duty, and good order and discipline of the entire Battalion.

Battalion Maintenance Officer. The Battalion Maintenance Officer is responsible for the material condition of all spaces and equipment in the Battalion and shall serve as the Battalion interface to the USNA Supply Department.

Battalion Training Officer. The Battalion Training Officer is responsible to the Battalion Executive Officer for the coordination of the Brigade Training Committee with Battalion training objectives.

Battalion Honor Representative. One of the Company Honor Representatives will be assigned to Battalion Staff to liaison between the Battalion and the Honor Committee.

Battalion Drill Officer. Responsible to the Battalion Commander through the Training Officer for the training of Battalion Staffs and Company Staffs on matters of drill.

Battalion Drill Sergeant. Supports the Battalion Drill Officer. The Battalion Drill Sergeant normally assumes the billet of Battalion Drill Officer during First-class year.

Battalion Operations Officer. The Battalion Operations Officer is responsible to the

Battalion Executive Officer for scheduling and execution of Battalion functions, missions, and movements.

Battalion Administrative Officer. The Battalion Administrative Officer is the administrative assistant to the Battalion Executive Officer and is responsible for all administrative and academic issues within the Battalion.

Battalion Drug and Alcohol Program Advisor (DAPA). One of the Company DAPAs in the Battalion will be assigned to Battalion Staff and will be responsible to the Battalion Administrative Officer for all matters concerning alcohol and drug awareness in the Battalion.

Battalion Adjutant. The Battalion Adjutant is responsible for the proper execution of watch and duty functions within the Battalion.

Battalion Administrative Chief. Supports the Battalion Administrative Officer. No formal duties assigned.

Battalion Sergeant Major. Responsible to the Battalion Commander for executing the policies and standards pertaining to the performance, training, appearance, and conduct of the underclass.

D. THE COMPANY STAFF
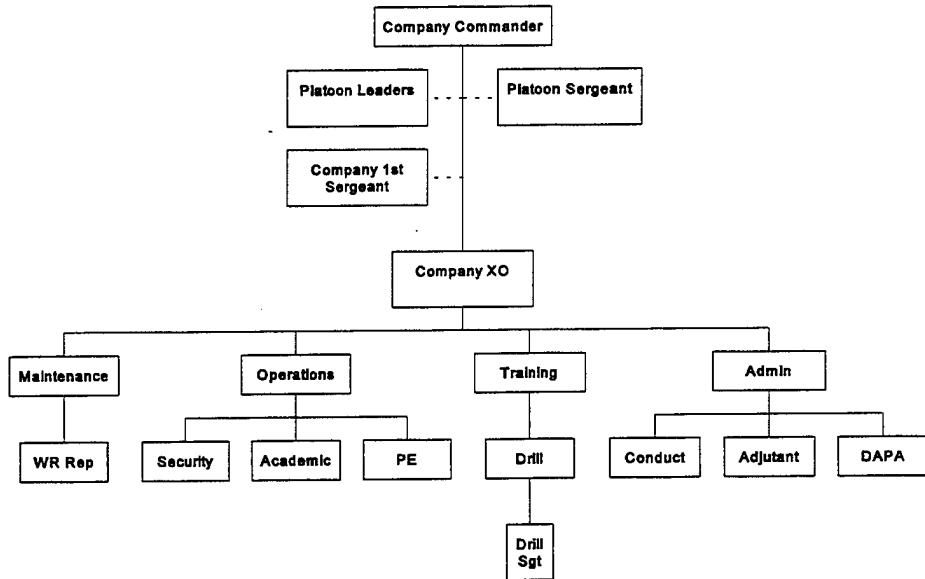
Figure A.4: The Company Staff

Company Commander. The Company Commander is charged with the responsibility for the safety, well-being, and efficiency of the Company.

Company Executive Officer. The Company Executive Officer is the direct representative of the Company Commander. The Company Executive Officer is primarily responsible for the organization, performance of duty, and good order and discipline of the entire Company.

Company Operations Officer. The Company Operations Officer is responsible under the

Company Executive Officer for the collection and dissemination of all information regarding Company missions and assigned tasks, except where those duties are specifically assigned to another officer.

Company Academic Officer. The Company Academic Officer is responsible to the Company Operations Officer for the overall academic performance of the Company.

Company Physical Education (PE) Officer. The Company PE Officer is responsible to the Company Operations Officer for all matters pertaining to physical education.

Company Security Officer. The Company Security Officer is responsible to the Company Operations Officer for the physical security of the Company area and associated equipment.

Company Administrative Officer. The Company Administrative Officer is an aide to the Company Executive Officer in specific matters of administration.

Company Drug and Alcohol Program Advisor. The Company DAPA is responsible to the Company Administrative Officer for proper execution of command policy on drug and alcohol programs.

Company Conduct Officer. The Company Conduct Officer is the assistant to the Company Administrative Officer and is responsible for the proper implementation and documentation of the Administrative Conduct System within the Company.

Company Adjutant. The Company Adjutant is responsible to the Company Administrative Officer for all Company musters, watch bills, and duty assignments.

Company Training Officer. The Training Officer assists the Company Executive Officer in the formulation and administration of the unit training program.

Company Drill Officer. Assistant to the Training Officer, responsible for all matters concerning Drill.

Company Drill Sergeant. The Company Drill Sergeant is a Second-class midshipman who assists the Company Drill Officer with all Company drill related matters.

Company Maintenance Officer. The Company Maintenance Officer is responsible to the Company Executive Officer for monitoring and maintaining the material condition of Company spaces, both inside midshipmen rooms as well as all common spaces.

<u>Wardroom Representative</u>. The Company Wardroom Representative is responsible to the Company Maintenance Officer for control of all wardroom equipment and interfaces with the USNA Supply Department.

<u>Company First Sergeant</u>. The Company First Sergeant is a Second-Class midshipman who is responsible to the Company Commander for the execution of policies and standards pertaining to the performance, training, appearance, and conduct of the underclassmen in the Company.

<u>Platoon Commander</u>. The Platoon Commander is the representative of the Company Commander in matters pertaining to the platoon.

<u>Platoon Sergeant</u>. The Platoon Sergeant is a Second-Class midshipman who assists the Platoon Commander in executing platoon objectives.

<u>Squad Leader</u>. The Squad Leader is assigned by the Company Commander to exercise authority and control over a squad.

<u>Team Leader</u>. The Team Leader is responsible to the Squad Leader. The Team Leader ensures all subordinates conform to the policies of the command.

Element Leader. The Element Leader is a Third-Class midshipman who is under the supervision of the Team Leader. Each element will consist of one plebe.

E.   MISCELLANEOUS DUTIES

YP Squadron Commodore. Acts as the extracurricular activity President for all midshipmen in the YP Squadron.

YP Craft Squadron Vice Commodore. The YP Squadron Vice Commodore acts as the extracurricular activity Vice President for all midshipmen in the YP Squadron.

Varsity Team Captains. Varsity team captains are responsible and accountable for the appearance, conduct, and accountability of their squads at all practices, meals, movements, and competitions.

APPENDIX B. MIDSHIPMEN FITNESS REPORT

This Appendix reproduces midshipmen fitness report performance characteristics (Blocks 19 through 30), along with a description of Blocks 31 through 38 from COMDTMIDNINST 1630.10 (1998).

A.   BLOCK 19: MILITARY BEARING/CONDUCT

The midshipman:

- Understands and follows USNA Uniform Regulations and maintains a smart and professional appearance.

- Room is maintained in a smart, professional condition. Sets a good example for others.

- Demonstrates self-control.

- Understands and follows the Navy's standards on alcohol use.

- Demonstrates proper behavior while on duty.

- Demonstrates proper behavior while off duty.

- Is always prompt.

- Promotes and achieves these same Military Bearing/Conduct standards with subordinates.

B.   BLOCK 20: PLANNING/ORGANIZING/DELEGATING

The midshipman:

- Develops realistic goals.

- Helps others develop realistic goals.

- Works well without supervision.

- Monitors others work without micro-managing.

- Manages time well enough to complete all his/her assignments.

- Completes assignments on time.

- Develops subordinates with appropriate skills to plan, organize, and execute realistic goals and milestones.

C.   BLOCK 21: EQUAL OPPORTUNITY (EO)

The midshipman:

- Understands and follows the Navy's EO standards.

- Educates others about the Navy's EO standards.

- Treats me in a professional manner.

- Treats others in a professional manner.

- Expects and achieves these same EO standards of subordinates.

D.   BLOCK 22: SUPERVISING/DEVELOPING SUBORDINATES

The midshipman:

- Is aware of his/her subordinates' strengths and weaknesses.

- Helps subordinates develop and realize goals.

- Motivates and challenges subordinates.

- Delegates tasks to subordinates.

- Monitors subordinates' performance without micro-managing.

- Accepts responsibility for subordinates' performance.

- Sets high standards for subordinates.

- Ensures subordinates have progressed significantly or have sustained superior growth such that minimal supervision of them is required.

E.   BLOCK 23: MATURITY

The midshipman:

- Requires no supervision during liberty, Extra-Curricular Activities (ECAs), Movement Orders, or Sports Events.

- Promotes and achieves these same standards in subordinates' behavior.

F.   BLOCK 24: QUALIFICATIONS AND WATCHSTANDING

The midshipman:

- Completes assigned qualifications promptly.

- Understands and follows watchstanding procedures.

- Demands high watchstanding standards of others.

- Ensures subordinates achieve full qualification in all areas in minimum time and perform all duties and watches in a superior and professional manner.

G. BLOCK 25: TEAMWORK

The midshipman:

- Works well with others.

- Works well with seniors.

- Works well with subordinates.

- Promotes group ownership in team assignments or objectives.

- Helps formulate team direction.

- Helps others.

- Promotes and achieves superior teamwork from subordinates.

H. BLOCK 26: VERBAL AND WRITTEN COMMUNICATION

The midshipman:

- Speaks in an articulate manner.

- Writes in an articulate manner.

- Composes written communications professionally.

- Promotes these same standards in subordinates' verbal and written communications through training and established standards.

I. BLOCK 27: DECISION MAKING

The midshipman:

- Weighs all available facts before making a decision.

- Seeks advice and input from others in making his/her decisions.

- Trains subordinates in decision making skills.

J.   BLOCK 28: PROFESSIONAL ETHICS

The midshipman:

- Does what is right.

- Resists peer pressure.

- Is a positive ethical role model.

- Ensures subordinates maintain these same standards of professional ethics.

K.   BLOCK 29: PHYSICAL DEVELOPMENT

The midshipman:

- Excels during the PRT.

- Maintains his/her weight and body fat within USNA standards.

- Makes physical fitness a priority in his/her regular schedule.

- Promotes and achieves high standards of physical development with subordinates.

L.   BLOCK 30: LEADERSHIP DEVELOPMENT

The midshipman:

- Has used available feedback to improve his/her leadership performance.

- Has used sound leadership theory and practice to improve the leadership growth of subordinates.

M.   BLOCK 31: LEADERSHIP RECOMMENDATIONS

The reporting senior provides a recommendation for a future leadership post or competitive training program for which he or she feels the midshipmen is most qualified.

N.   BLOCK 32: COMMENTS ON PERFORMANCE

This block contains specific comments on the midshipman's performance while attached to the unit. Specific accomplishments are listed that stand out above the other midshipmen assigned. All comments must be verifiable. Additionally, any performance characteristic evaluated as Below Standards or Exceeds Standards must be specifically addressed in the comments section.

O.   BLOCKS 33 & 34: PROMOTION RECOMMENDATION

The reporting senior ranks the midshipman compared to the midshipman's peers in the unit, by quartile. For example, the midshipman can be ranked in the top, second, third, or bottom quartile. The midshipman can also be ranked as Unfit (for duty). Additionally, the total number of midshipmen ranked in each quartile is recorded.

P.   BLOCKS 38. PERFORMANCE GRADE

Factors that affect the performance grade include drill and parade performance, conduct grade, room appearance, watchstanding, understanding and support of the plebe

indoctrination system, sports participation, extracurricular activities participation, and personal appearance and military bearing.

Performance grades are assigned according to the following criteria:

- Outstanding - (grade of A) assigned to those midshipmen whose performance is truly outstanding in all respects.

- Above Average - (grade of B) assigned to those midshipmen whose performance is above average in comparison with their peers.

- Average - (grade of C) assigned to those midshipmen whose military performance is average in comparison with their peers.

- Below Average - (grade of D) assigned to those midshipmen whose performance is below average. A grade of 'D' automatically places the individual on probation for the following semester and results in the issuance of a probationary letter from the Battalion Officer. If a midshipman receives a second consecutive 'D', an appearance before the Brigade Military Performance Board is required.

- Failing - (grade of F) assigned only by the Academic Board to those midshipmen who have demonstrated insufficient aptitude for service. As a result, the midshipman may be recommended for separation to the Secretary of the Navy.

Company Officers are required to utilize a standard distribution plan to prevent grade inflation.

- Outstanding (A) 20-30%

- Above Average (B) 25-40%

- Average (C) 20-45%

- Below Average (D) 03-10%

- Failing (F) Assigned by Academic Board

APPENDIX C. 360-DEGREE FEEDBACK QUESTIONS

The statements subordinates use to rate their superiors are reproduced in this Appendix from the Naval Academy's 360-degree feedback survey form.

A.   INDIVIDUAL CHARACTER

Moral Courage: My squad leader makes the best moral choice in any given situation, placing conscience over competing interests regardless of personal consequence.

Unselfishness: My squad leader places the organization first, and self last, adhering to the concept of "Ship, Shipmate, Self."

Accountability: My squad leader accepts accountability for his or her actions, and also the actions of subordinates (i.e., squad members).

B.   SETTING THE EXAMPLE

My squad leader seeks and demonstrates his/her full potential in their own academic performance.

My squad leader seeks and demonstrates excellence in his/her professional knowledge.

My squad leader seeks and demonstrates excellence in his/her level of physical fitness.

My squad leader seeks to maintain the highest room standards in the squad.

My squad leader seeks to maintain his/her uniform appearance standards among the highest in the squad.

My squad leader supports USNA and U.S. Navy (USN) rules and regulations as evidenced in their daily actions and decisions.

C. DEVELOPING SUBORDINATES

My squad leader encourages subordinates to make the best moral choice in any given situation.

My squad leader monitors and mentors subordinates on their academic performance.

My squad leader monitors and mentors subordinates on their professional knowledge.

My squad leader monitors and mentors subordinates on their level of physical fitness.

My squad leader encourages subordinates to seek increased levels of responsibility.

D. UPHOLDING STANDARDS

My squad leader promotes basic respect and dignity for individuals regardless of race and gender.

My squad leader requires subordinates to take personal accountability for their actions, holding subordinates to a high standard.

My squad leader uses the chain of command properly, and ensures subordinates use the chain of command properly (show loyalty to seniors by passing along orders from above as his or her own, shows loyalty to juniors by keeping them informed and seeking their input

and feedback).

My squad leader provides constructive feedback to correct deficiencies, counseling subordinates on personal performance and behavior.

My squad leader inspects and monitors squad member's room standards, mindful of maintaining consistency and fairness among upperclass and underclass subordinates.

My squad leader inspects and monitors squad member's uniforms, mindful of maintaining consistently high standards among upperclass and underclass subordinates.

My squad leader enforces USNA and USN rules and regulations consistently and fairly among peers, upperclass, and underclass.

E.   LEADERSHIP

My squad leader articulates well-defined and reasonable goals, then monitors subordinates progress toward achieving them.

My squad leader builds and sustains a team atmosphere, requiring accountability among squad members.

My squad leader delegates authority as low as possible down the chain of command, commensurate with competence, experience, and commitment of subordinates.

My squad leader displays a genuine interest in subordinate well-being. He or she demonstrates initiative in responding in a timely manner to squad member's concerns (e.g., administrative actions or special requests) and keeps subordinates informed.

My squad leader does not rely too heavily on positional authority (i.e., rank) to

motivate subordinates toward mission accomplishment.

My squad leader avoids micro-management but provides follow-up to ensure projects are progressing.

My squad leader does not default to coercive meanings to motivate or to correct deficiencies.

My squad leader follows the guidelines of "praise in public, and reprimand in private."

APPENDIX D. COUNSELING AND LEADERSHIP THEORIES CONSIDERED BY THE VISTA PROGRAM

This appendix is intended to provide a list of counseling and leadership theories considered by the VISTA developers (Schroeder, et al., 1986). A description of each theory is beyond the scope of this thesis.

A.   COUNSELING THEORIES

Psychoanalysis

Existential Theory

Client-Centered Therapy

Gestalt Psychology

Rational-Emotive Therapy

Reality Therapy

Behavior Therapy

Helping Skills

Transactional Analysis

B.   LEADERSHIP THEORIES

Trait Theory

Environmental Theory

McGregor's Theory X and Theory Y

The Managerial Grid

Four-Factor Theory

Fiedler's Contingency Model of Leadership

Path-Goal Theory

Social Exchange Theory

Vroom's Decision-Making Model of Leadership

Situational Leadership

Behavioral Theory

Power Theory

The Vertical Dyad Linkage Approach

Developmental Model of Leadership

LIST OF REFERENCES

Air University (1953). <u>Leadership Training Guide</u>. Montgomery, AL: Air University AFROTC..

Allely, E., Tekamah Corporation, personal interview with the author, May 20 1999.

Andersen, G., Lieutenant Commander, USN, Naval Leadership Section Head, Department of Leadership, Ethics, and Law, United States Naval Academy, personal interview with the author, December 1998.

Andersen, G., Lieutenant Commander, USN, Naval Leadership Section Head, Department of Leadership, Ethics, and Law, United States Naval Academy, personal interview with the author, April 1999.

Atwater, L. and Yammarino, F.J. (1989). <u>Transformational Leadership Among Midshipmen Leaders at the U.S. Naval Academy</u>, Office of the Chief of Naval Research Manpower, Personnel, and Training R&D Program, Report AD-A208-912.

Barron, Tom (1998). The hard facts about soft-skills software. <u>Training & Development</u>. v. 52 (6), pp. 48-51.

Bass, B.M. (1990). <u>Bass & Stogdill's Handbook of Leadership: Theory, Research, and Managerial Applications</u>, 3rd ed., New York: The Free Press.

Bryson, J., & Kelley, G. (1978). A political perspective on leadership emergence, stability, and change in organizational networks. <u>Academy of Management Review</u>, v. 3, pp. 712-723.

Burke, W.P. and Davis, P.K. <u>The Leadership Improvement Modules of the Precommissioning Leadership Assessment Program</u>, U.S. Army Research Institute for the Behavioral and Social Sciences, Report 1425 (AD-A171 422), February 1986.

Burns, J.M. (1978). Transactional and Transforming Leadership. In J.T. Wren (Ed.), <u>The Leader's Companion</u> (pp. 100-101). New York, NY: The Free Press.

Chemers, M.M. (1995) Contemporary Leadership Theory. In J.T. Wren (Ed.), <u>The Leader's Companion</u> (pp. 83-99). New York, NY: The Free Press.

COMDTMIDNINST 1600.2, "Midshipmen Military Performance System" October 14, 1998.

COMDTMIDNINST 1601.12, "Brigade Striper Organization and Selection Procedures" October 4, 1996.

COMDTMIDNINST 1610.3, "Midshipmen Performance Evaluation and Counseling System" August 13, 1998.

COMDTMIDN NOTICE 1530 "1998 Midshipmen Summer Training Program" March 3, 1998.

Coughlin, S.J. An Assessment of the Shipboard Training Effectiveness of the Integrated Damage Control Training Technology (IDCTT) Version 3.0. Master's Thesis, Naval Postgraduate School, Monterey, CA. March 1998.

Cronin, T.E. (1995). Thinking and learning about leadership. In J.T. Wren (Ed.), The Leader's Companion (pp. 27-32). New York, NY: The Free Press.

Curriculum-21 Committee Report to the Superintendent, United States Naval Academy. Curriculum 21 Report. April 28, 1998.

Dubrin, A.J. (1997). Understanding Individual Differences. In G.R. Andersen (Ed.), Leadership, Theory and Application (pp. 104-109). Needham Heights, MA: Simon & Schuster Custom Publishing.

Fletcher, J.D. Advanced Technologies Applied to Training Design: What Have We Learned about Computer Based Instruction in Military Training? (Institute for Defense Analysis September 1995), report presented at the NATO Research Study Group (RSG 16) Workshop on Lessons Learned.

Fletcher, J.D. Does This Stuff Work? Some Findings from Applications of Technology to Education and Training. (Institute for Defense Analysis 1996), Proceedings of Conference on Teacher Education and the Use of Technology Based Learning Systems. Warrenton, VA: Society for Applied Learning Technology.

Fiedler, F. E. (June, 1996). Research on leadership selection and training: One view of the future. Administrative Science Quarterly. v. 41 (2), p. 241.

Goleman, D. (1998). Working With Emotional Intelligence. New York, NY: Bantam Books.

Halpern, D. F. (1994). Changing College Classrooms, 1st ed. San Francisco, CA: Jossey-Bass.

Hergenhahn, B.R., & Olson, M.H. (1997). <u>An Introduction to Theories of Learning,</u> 5th ed. Upper Saddle River, NJ: Prentice Hall.

Hiles, J., Thinking Tools, Inc., telephone interview with the author, May 21, 1999.

Jorgensen, W., Camber Corporation, telephone interview with the author, February 1999.

Katz D.J (1987). Leadership education and training at the U.S. Naval Academy. In L Atwater and R. Penn (Eds.), <u>Military Leadership: Traditions and Future Trends.</u> Conference conducted at the United States Naval Academy, Annapolis, Maryland.

Kearsley, G. (1983). <u>Computer-Based Training: A Guide to Selection and Implementation.</u> New York: Addison-Wesley Publishing Company.

Keirsey, D. "Keirsey Character Sorter." [http://www.keirsey.com]. November 1998.

Kennedy R. <u>Leadership Development Revisited: An Assessment of Midshipmen Learning Processes at the United States Naval Academy.</u> Master's Thesis, Naval Postgraduate School, Monterey, CA. June 1998.

Kirkpatrick, S.A. & Locke, E.A. (1991). Leadership: Do Traits Matter? In J.T. Wren (Ed.), <u>The Leader's Companion</u> (pp. 133-143). New York, NY: The Free Press.

Knowles, M. & Knowles, H. (1955) <u>How to Develop Better Leaders.</u> New York:Association Press.

Kolb, D.A. and Wolfe (1991). Career Development, Personal Growth, and Experiential Learning In D. A. Kolb, J.S. Osland, & I.M. Rubin (Eds.) <u>The Organizational Behavior Reader,</u> 5th ed. Englewood Cliffs, NJ: Prentice-Hall.

Kolodner, J, Hmelo, C. Narayanan, H. (1996). Computer support for learning through complex problem solving. <u>Association for Computing Machinery</u> (pp. 43-46). New York: Communications of the ACM.

Krulak, C. C. , Commandant of the Marine Corps. In his speech to the United States Naval Academy Alumni Association, Greater Washington Chapter, April 21 1999.

Lau, A, Atwater, L., Avolio, B., Brass, B. <u>Foundations for Measuring the Development and Emergence of Leadership Behavior.</u> Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Report Nr. AD-A273 108, September 1993.

Lewis, R.J. <u>Naval Leadership: A Study of Views on Leadership Competencies and</u>

Methods to Reinforce Leadership Skills. Master's Thesis, Naval Postgraduate School, Monterey, CA. December 1990.

McCall, M.W. and Lombardo, M.M (1982). Using simulation for leadership and management research: Through the Looking Glass. Management Science, v. 28 (5), pp. 533-549.

Maher T, & Stottler, R Case-Based Reasoning for Simulation Based Medical Specialist Intelligent Tutoring System. Orlando, FL: U.S. Army Research Institute. Report Nr. AD-A280 479, May 1994.

MIL-HDBK-1379-2 "Instructional Systems Development/systems Approach to Training and Education (Part 2 of 4 Parts)" June 9, 1997.

MIL-HDBK-1379-3 "Development of Interactive Multimedia Instruction (IMI) (Part 3 of 4 Parts) June 9, 1997.

Mitchell, A., Ninth House Corporation, personal interview with the author, January 1999.

Ninth House Corp. [http://www.ninthhouse.com]. January 1999.

Parker, D.F. (1981). Leadership Training in the Navy. In J.H. Buck & L. Korb (Eds.), Military Leadership (pp. 195-214). Beverly Hills, CA: Sage Publications.

Pintrick, P.R. and Schunk, D.H. (1996). Motivation in Education: Theory, Research, and Applications. Englewood Cliffs, N.J.: Prentice Hall.

Reigeluth C.M., & Schwartz (1989, Winter). An instructional theory in the design of computer-based simulations. Journal of Computer-Based Instruction. v. 16 (1), pp. 1-10.

Romiszowski, A.J. (1988). The Selection and Use of Instructional Media, 2nd ed. New York, NY: Kogan Page.

Schein, E.H. (1992). Organizational Culture and Leadership, 2nd ed. San Francisco, CA:Jossey-Bass Publishers.

Schroeder, J.E, Dyer, F.N., Czerny, P., Youngling, E.W., Gillotti, D.P. (1986). Videodisc Interpersonal Skills Training and Assessment (VISTA), Volumes 1-4. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Report Nr. 703 (AD-A168 287), January 1986.

Sgro, J.A., Dobbins, G., Pence, E.C. Development of a Performance-Based Program for

U.S. Army ROTC Leadership Training. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Report Nr. 1419 (AD-A67 938), January 1986.

Stogdill, R.M. (1948). Personal Factors Associated with Leadership. In J.T. Wren (Ed.), The Leader's Companion (pp. 127-132). New York, NY: The Free Press.

Sweetman, J (1979). The U.S. Naval Academy; An Illustrated History. Annapolis, MD: Naval Institute Press.

Taylor, B., Director of the Leadership Continuum Division, Chief of Naval Education and Training, telephone interview with the author, February 1999.

Thebaud (1924). Naval Leadership With Some Hints to Junior Officers and Others. Annapolis, MD: Naval Institute Press.

Thinking Tools Inc, "About Us," [http://www.thinkingtools.com/html/about_thinking_tools.html], January, 1999.

Special Committee To the Board of Visitors, United States Naval Academy (1997). The Higher Standard: Assessing the United States Naval Academy. Annapolis, MD

United States Naval Academy Catalog, 1998-1999. Annapolis, MD.

United States Naval Academy's 150th Anniversary Yearbook. (1995) Annapolis, MD: Comprint, Inc.

United States Naval Academy Department of Leadership and Law (1949). Naval Leadership, 1st ed. Annapolis, MD: Naval Institute Press.

United States Naval Academy Department of Leadership and Law (1959). Naval Leadership, 2nd ed. Annapolis, MD: Naval Institute Press.

United States Naval Academy Department of Leadership and Law (1984). Fundamentals in Naval Leadership. Annapolis, MD: Naval Institute Press.

INITIAL DISTRIBUTION LIST